Aashay Measurements
Private Limited
Measurement & Instrumentation Solutions

USER MANUAL
AASHAY DATA LOGGER KIT

A COMPLETE GUIDE FOR

- ***DATA LOGGING***
- ***SENSOR CINNECTIONS***
- ***SOFTWARE SETTINGS***
- ***DATA DOWNLOADING***
- ***DATA EXPORTING TO EXCEL***

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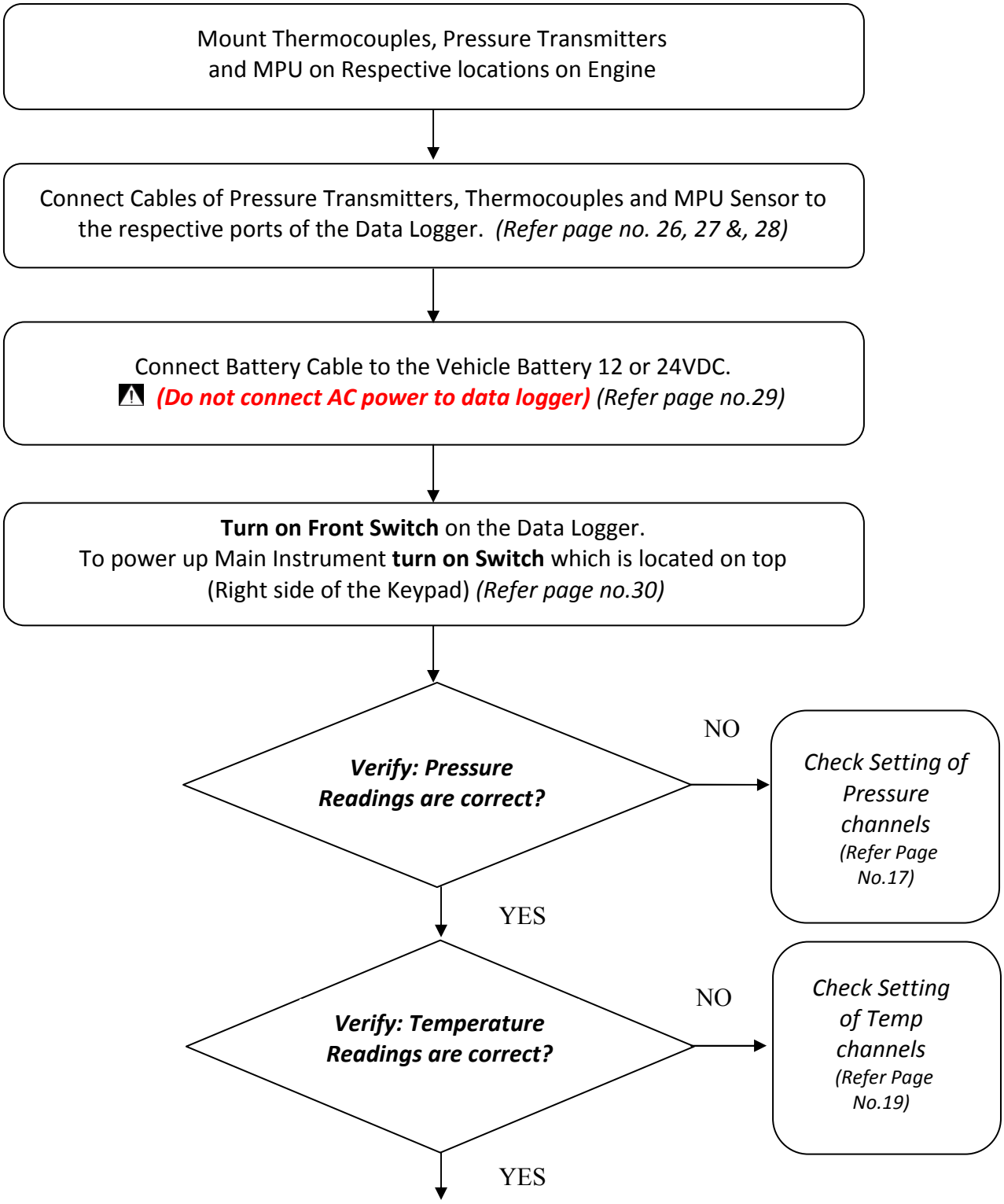
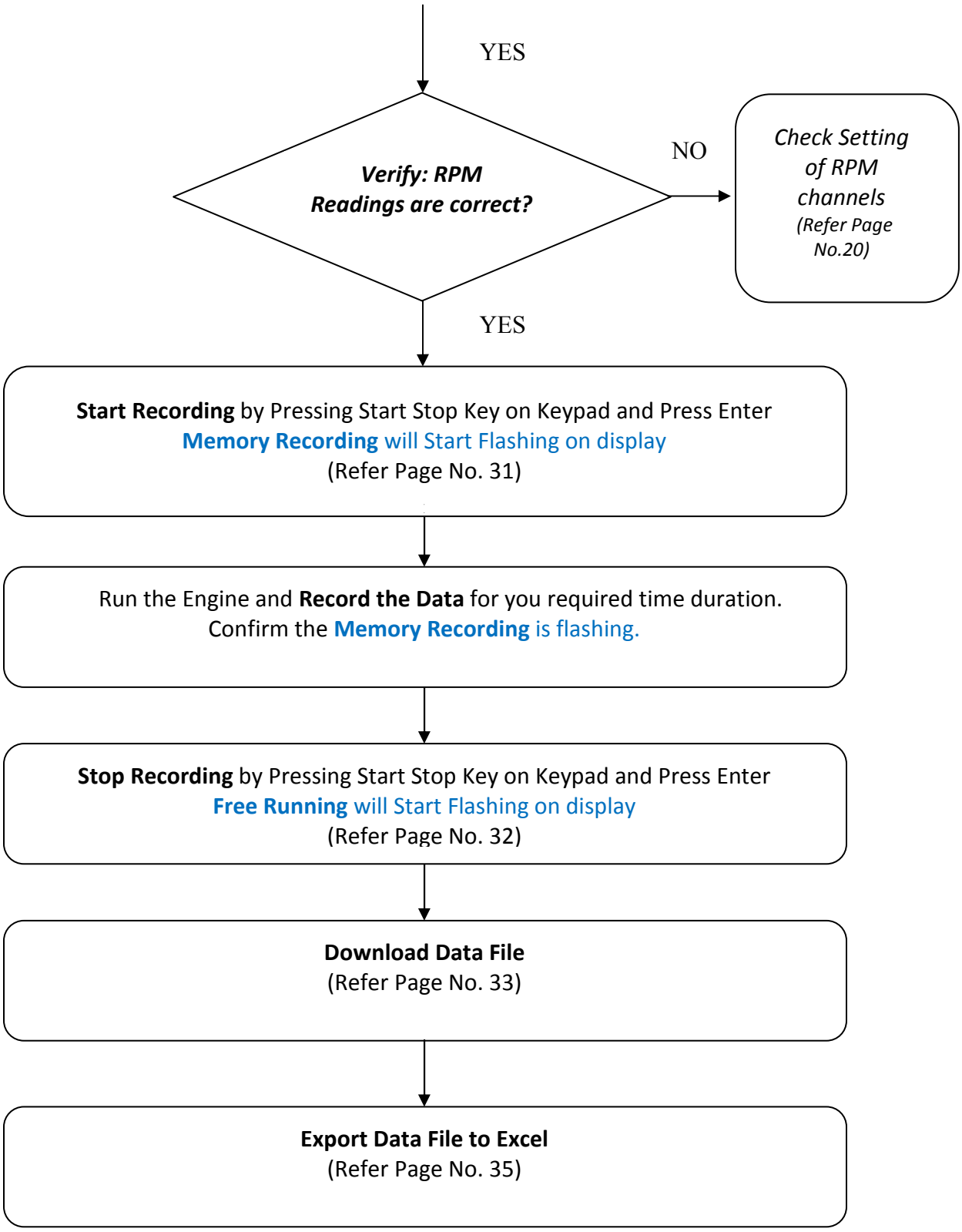
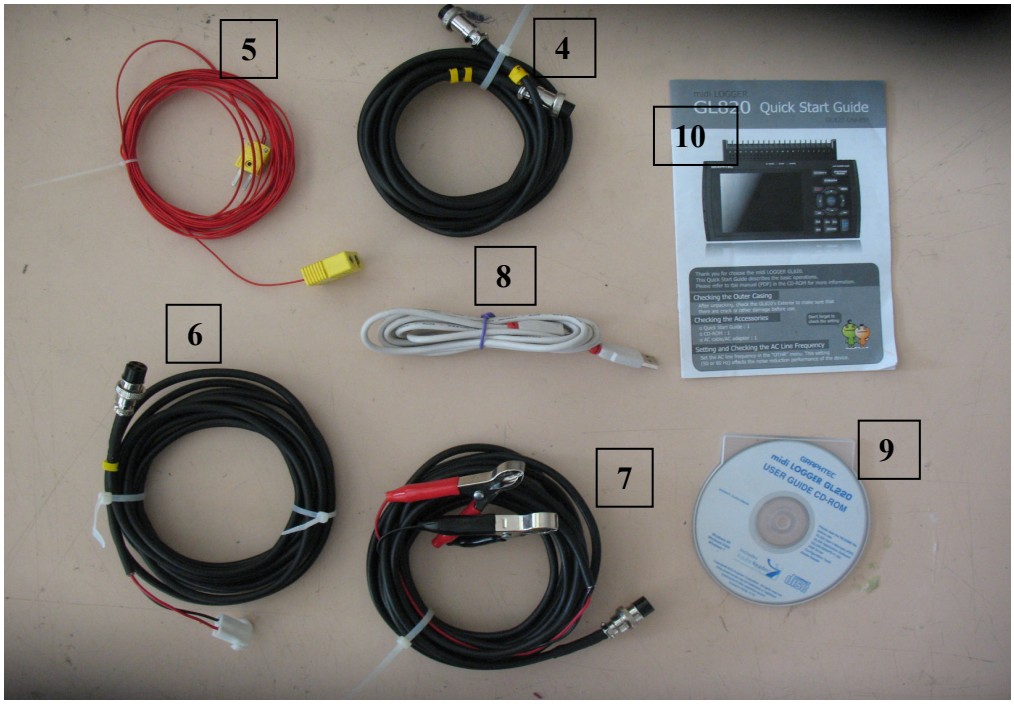
1. Flow Chart : Simple Operating Procedure




YES
Verify: RPM Readings are correct?
NO
Check Setting of RPM channels (Refer Page No.20)
YES
Start Recording by Pressing Start Stop Key on Keypad and Press Enter
Memory Recording will Start Flashing on display
(Refer Page No. 31)
Run the Engine and Record the Data for you required time duration.
Confirm the Memory Recording is flashing.
Stop Recording by Pressing Start Stop Key on Keypad and Press Enter
Free Running will Start Flashing on display
(Refer Page No. 32)
Download Data File
(Refer Page No. 33)
Export Data File to Excel
(Refer Page No. 35)

2. Hardware Check List



Hardware Check List

Sr. No.	Description	Qty
1	**GL220 Data Logger**	1 No.
2	**Pressure Transmitter**	
	Range	
2.1	0 to 25 Bar	1 No.
2.2	0 to 25 Bar	1 No.
2.3	0 to 4 Bar	1 No.
2.4	0 to 4 Bar	1 No.
3	**Thermocouples**	6 Nos.
4	**Cable of Pressure**	4 Nos.
5	**K type compensating cables with Heavy duty Connector**	6 Nos.
6	**RPM cable**	1 No.
7	**Battery Cable**	1 No.
8	**USB Cable**	1 No.
9	**Software CD**	1 No.
10	**Manual**	1 No.

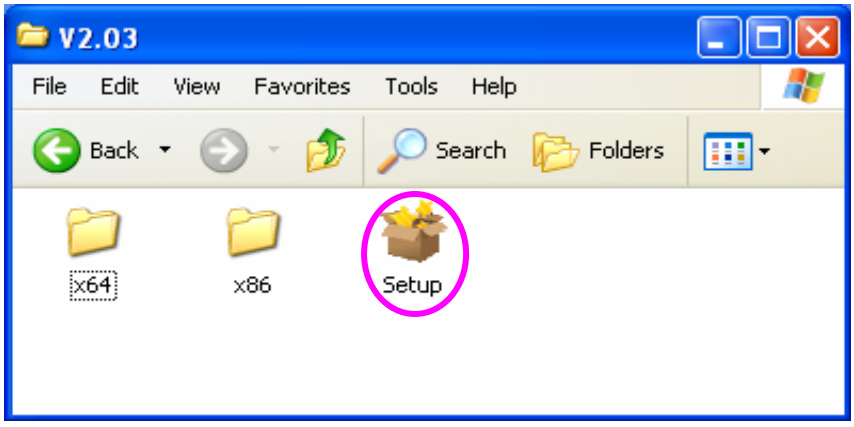
3. Software Installation Guide

3.1. Installing the GL220 Application Software

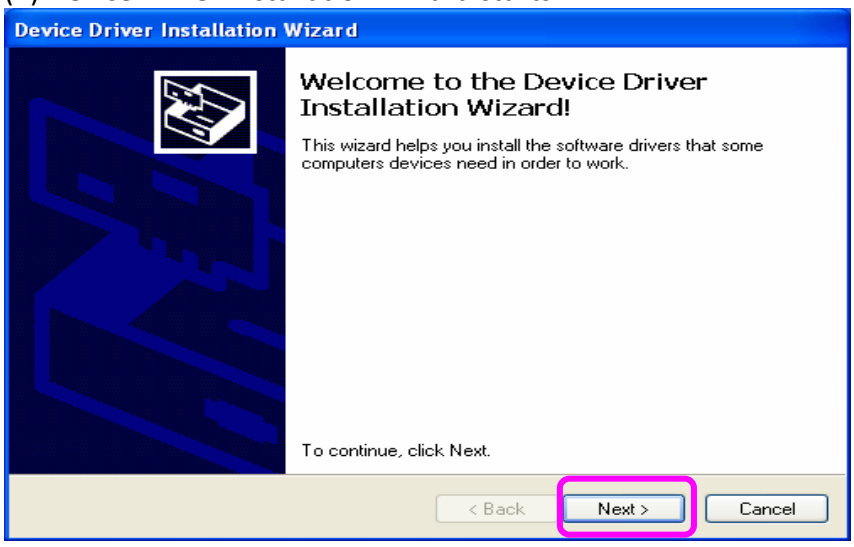
This chapter describes how to install the application software.
(1) Insert the User's Guide CD-ROM provided into the PC's CD-ROM drive.
(2) Click the Taskbar's Start button, and then click the Run... icon to open the "Run" window.
(3) Enter the CD-ROM drive name and \English\English\GL220-820\Setup.exe as the name of the file you wish to open. If the disk is in drive D, for example, enter "D\English\GL220_820-APS\Setup.exe" in the box and then click "OK" to launch the installer.
(4) Follow the instructions on the screen to continue with the installation.

3.2Installing the USB driver

(1) Start D: ＼USB Driver＼USB Driver＼Setup.exe.
(Double click the Setup or Setup.exe.)

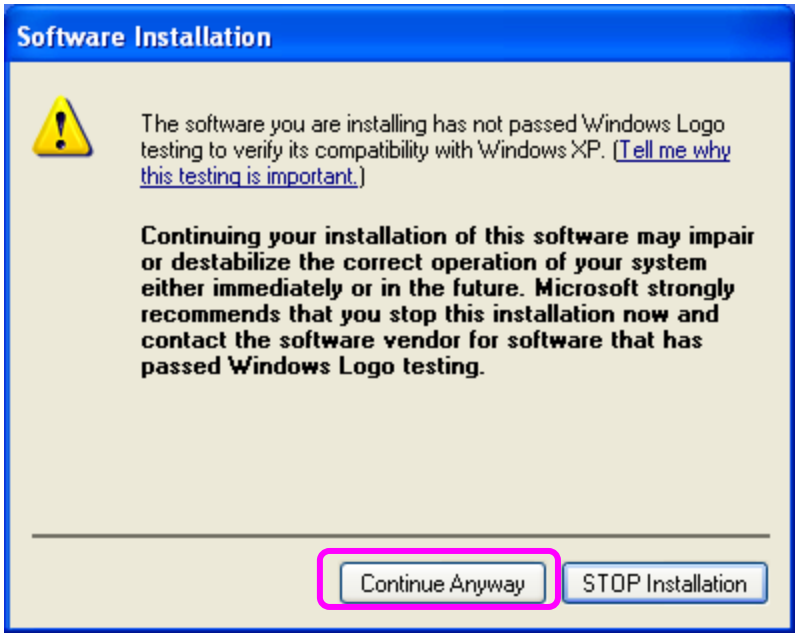


(2) Device Driver Installation Wizard starts.



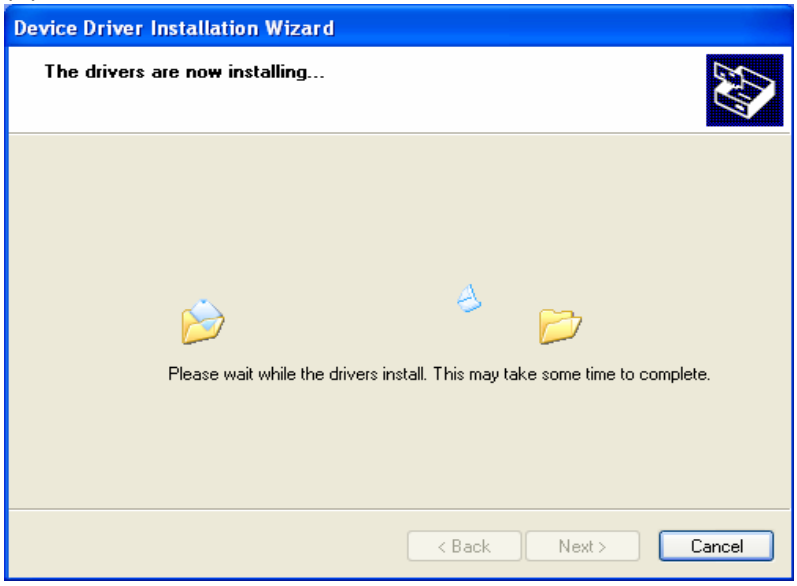
Press the Next button.

(3) The Software Installation dialog box opens in some cases.

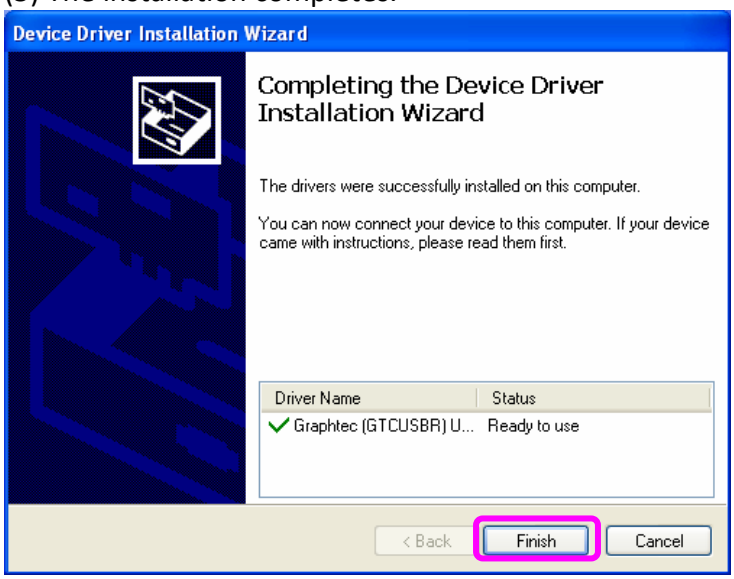


Press Continue Anyway button.

(4) Please wait while wizard installs the driver software.



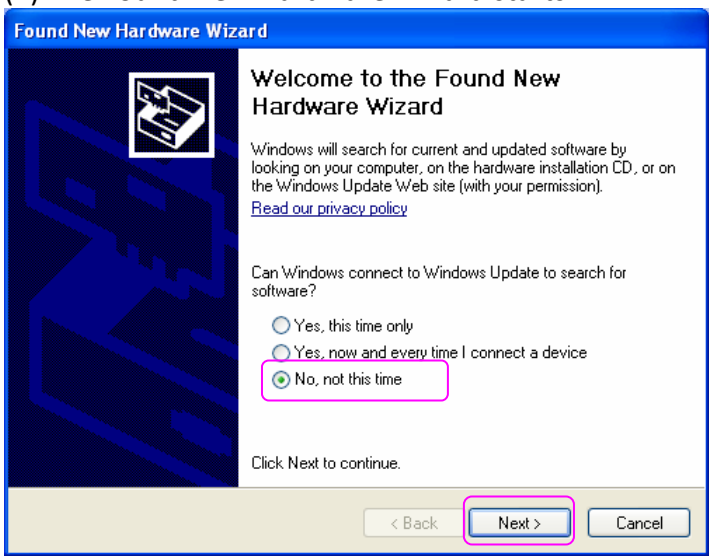
(5) The installation completes.



Press Finish button to exit the Setup.

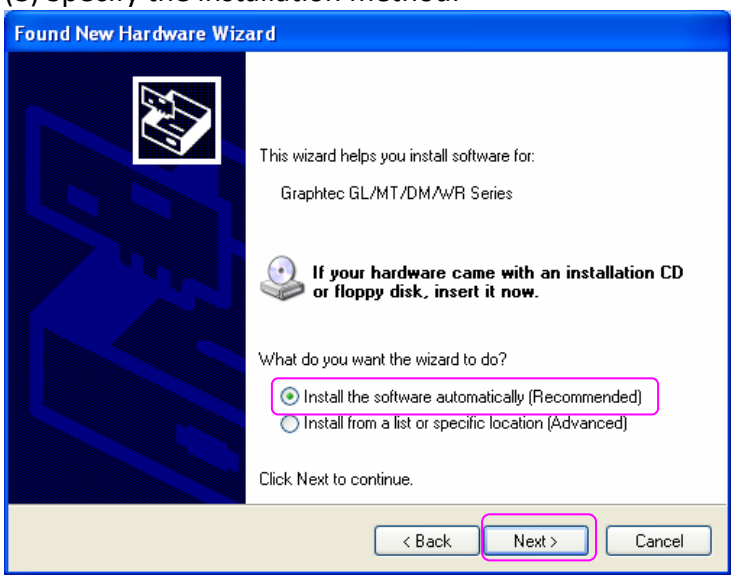
(6) Turn on the GL220 logger and wait for a while till the initialization of device is Completed.
Connect GL220 to your PC using the USB cable.
The Found New Hardware Wizard in (7) and subsequent steps starts only at the first Connection. (It will never appear again after the next connection of your device to your PC.)
When the USB port to be connected is changed or the USB-HUB is used, the Found New Hardware Wizard reopens in some cases.
In that case, perform step (7) and subsequent steps.

(7) The Found New Hardware Wizard starts.



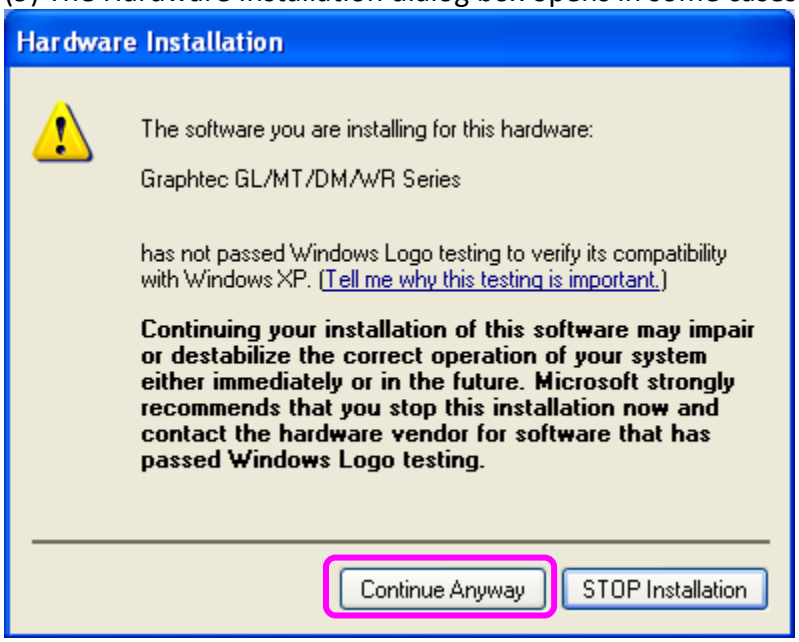
Select "No, not this time" and click the Next button.

(8) Specify the installation method.



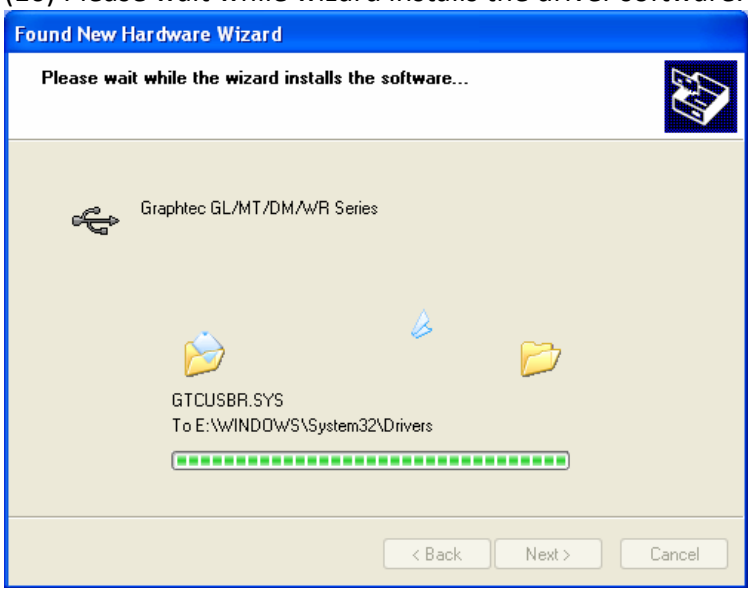
Select "Install the software automatically (Recommended)" and click the Next button.

(9) The Hardware Installation dialog box opens in some cases.

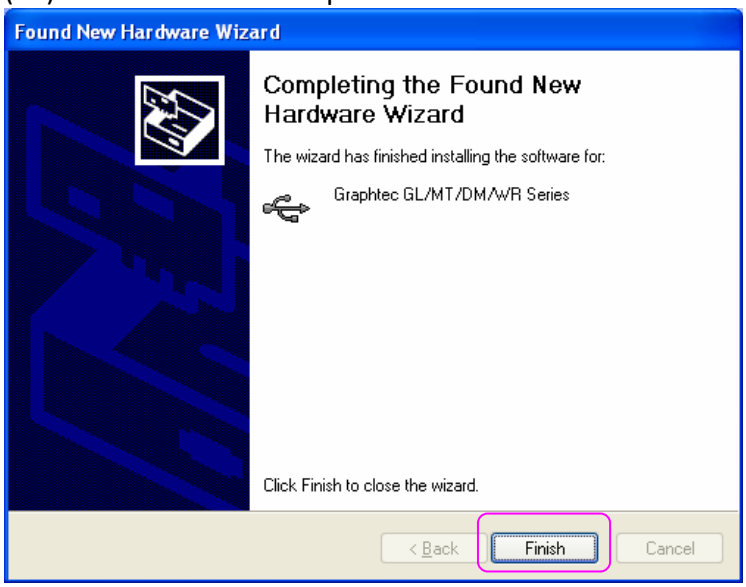


Press Continue Anyway button.

(10) Please wait while wizard installs the driver software.



(11) The installation completes.



Click the Finish button to exit the Found New Hardware Wizard.

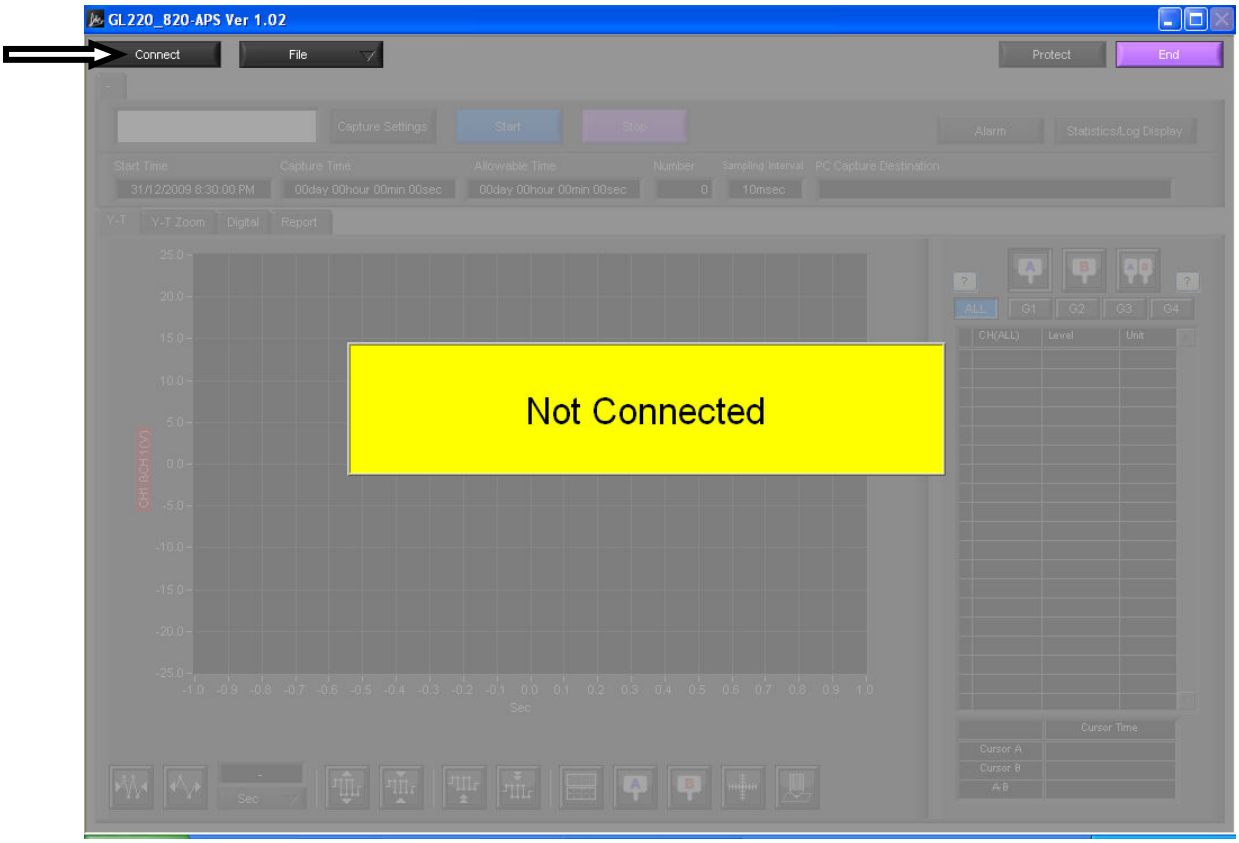
3.3 Launching the Software

Click the Taskbar's "Start" button Programs**GL220_820-**APS → **GL220_820APS"** to launch the application software. Once the program has started up, the following screen is displayed.

4. Communication

Communication of Data Logger with PC:

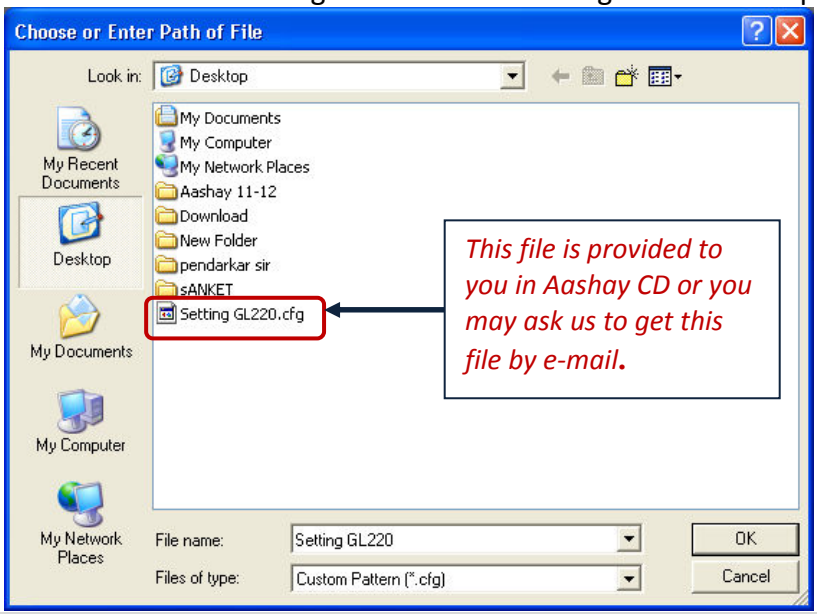
Power up the logger GL220 Data logger & connect it to PC through USB Cable.
Open GL220 software.



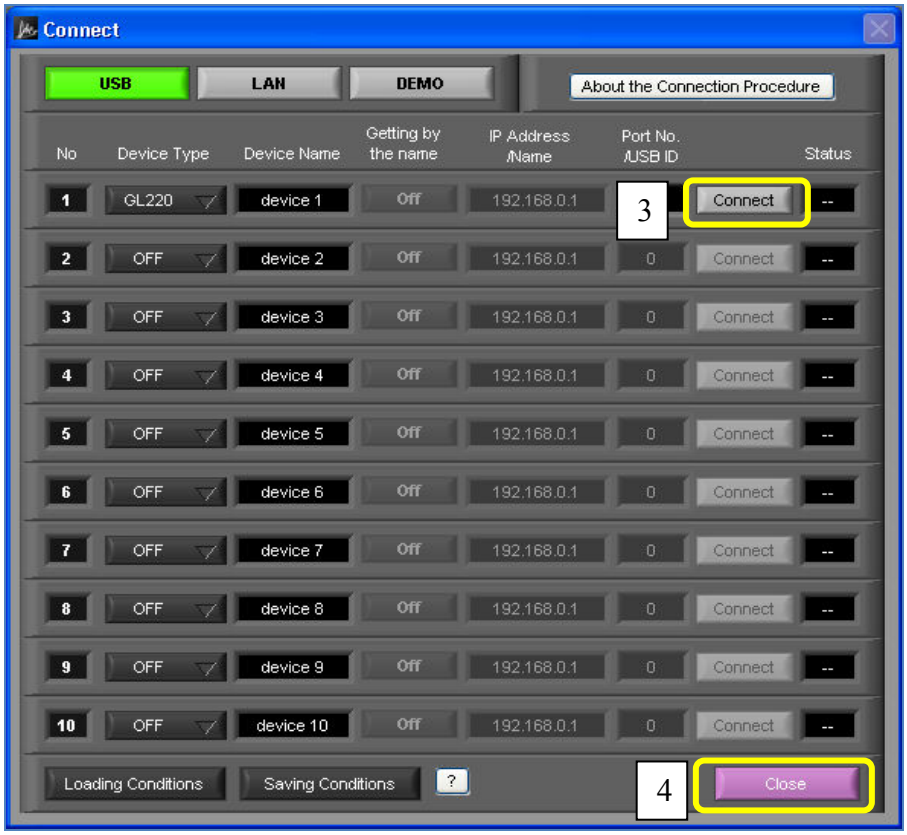
⚠ **Click the "Connect" in the Main screen, and the Connection screen will be displayed.**

Loading Standard (Ready to use) Setting from your PC

1. Select Device : GL220
2. Click on : Loading Conditions. Following window will open.



Select: **Setting GL220.chg** and click on **OK.**

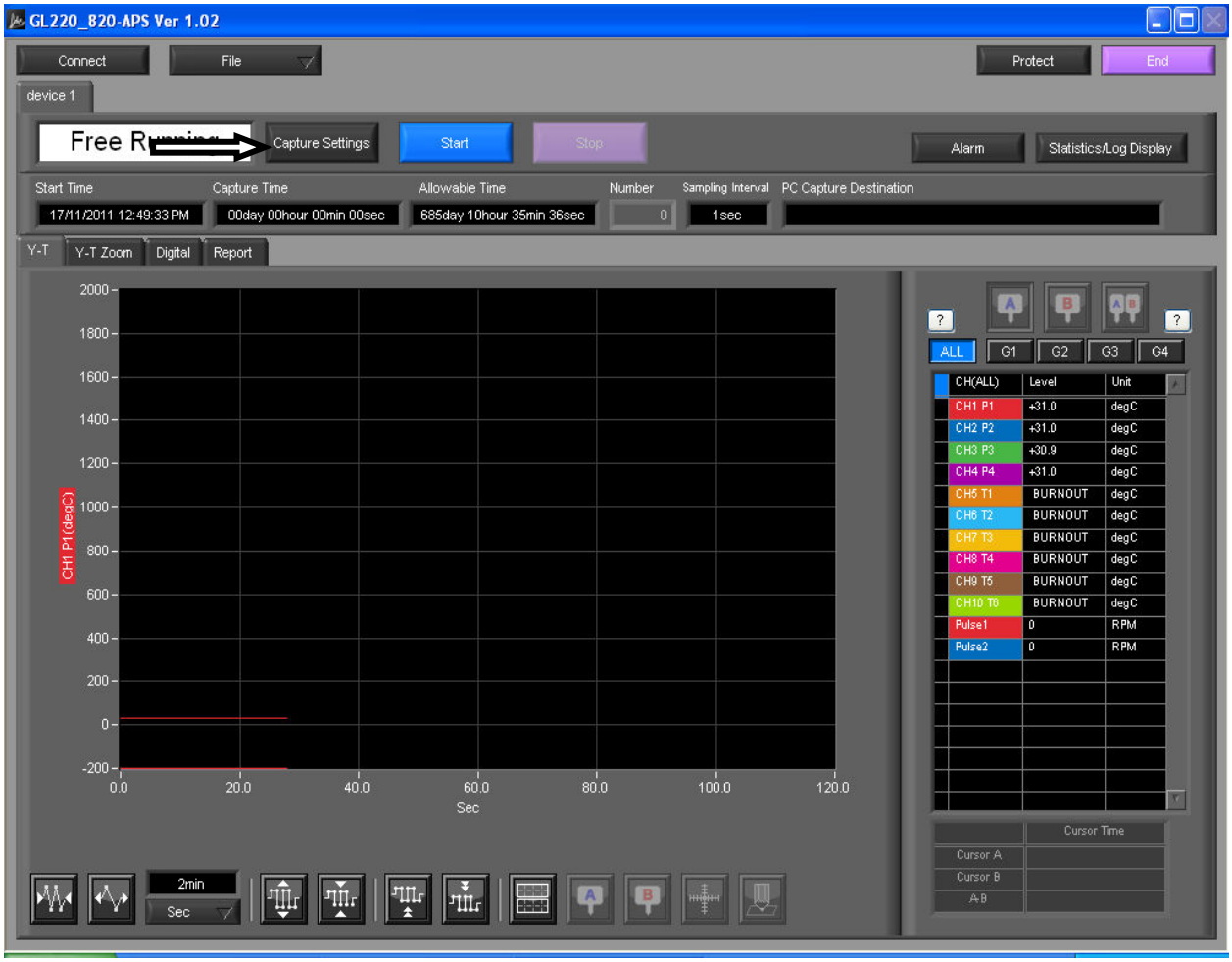


3) Click on **Connect.** After clicking Devices Status will displayed "**OK**".

4) Click on **Close**.

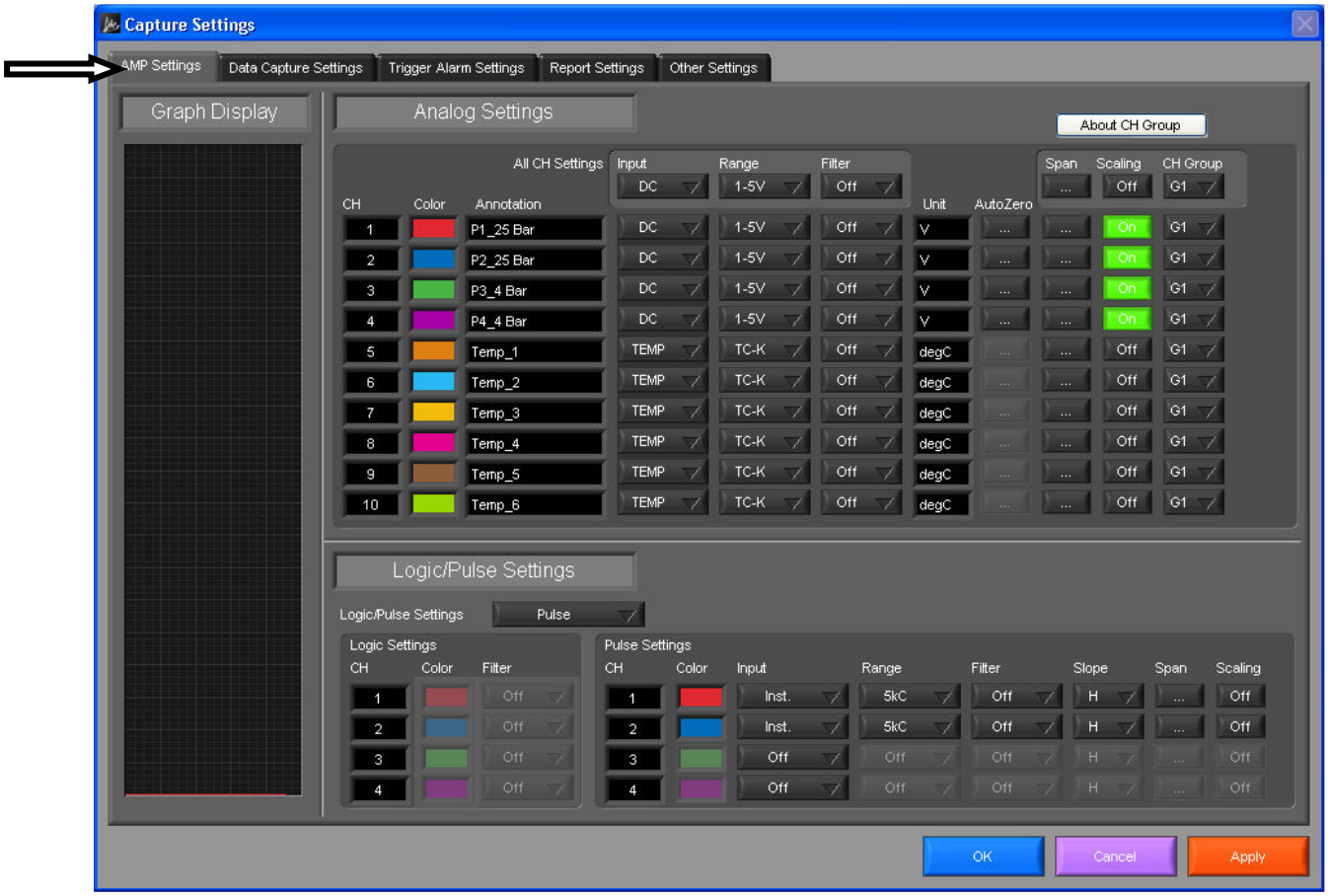
5. Capture Settings

Settings such as the Channel Setup, Sampling Interval are made at this screen.



Click the **"Capture Settings"** button Open New windows.

- ***AMP Setting:***


Capture Settings
AMP Settings
Data Capture Settings
Trigger Alarm Settings
Report Settings
Other Settings
Graph Display
Analog Settings
About CH Group
All CH Settings
Input
Range
Filter
Span
Scaling
CH Group
CH
Color
Annotation
Unit
AutoZero
1 P1_25 Bar
2 P2_25 Bar
3 P3_4 Bar
4 P4_4 Bar
5 Temp_1
6 Temp_2
7 Temp_3
8 Temp_4
9 Temp_5
10 Temp_6
Logic/Pulse Settings
Logic/Pulse Settings
Pulse
Logic Settings
Pulse Settings
Slope
OK
Cancel
Apply

6. Pressure Setting

- **CH No. 1 to CH No. 4** are connected to Pressure inputs P1 to P4 respectively, so particularly we can configure CH1 to CH4 for Pressure inputs.

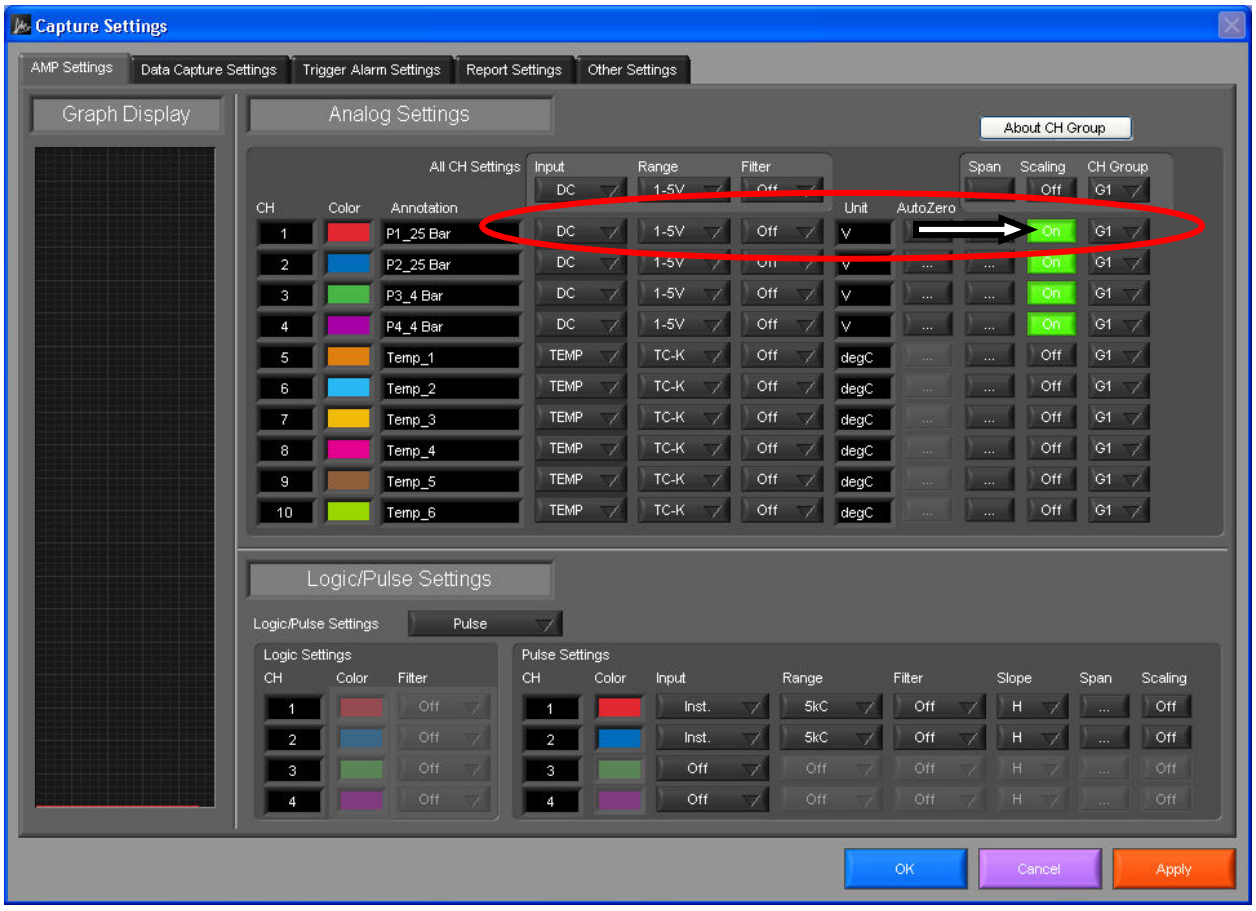
Note: These channels are already set while supplying the instrument, so you no need to set / configure the channels.

In any case if settings are disturbed, you may retrieve the original settings by referring : Loading standard Set-up procedure on page no. 13 & 14.

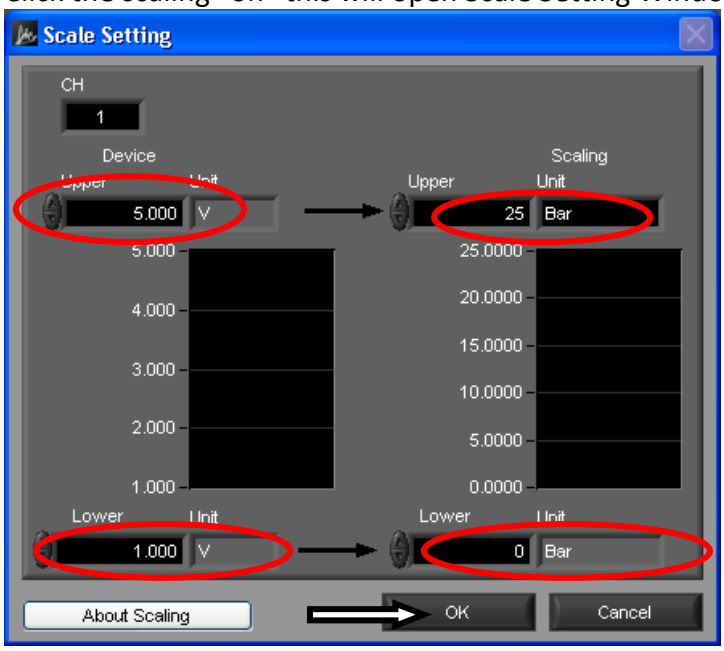
To set the Pressure channel to CH1 to CH4, refer following procedure.

Select Input **"DC**".

Select input Range "**1-5** V"



Click the scaling “on” this will open Scale Setting Window.



For e.g. for Pressure Transmitter Range: 0-25 Bar scaling will be as follows,

Device **Scaling**
Upper 5 **Upper 25**
Lower 1 **Lower 0**
Unit of V as Bar
Then click **OK**

Pressure channel Setting:

Sr. No	Sensor Type	Description	Channel name
1	0 - 25 Bar	P1	Pressure_1
2	0 - 25 Bar	P2	Pressue_2
3	0 – 4 Bar	P3	Pressure_3
4	0 – 4 Bar	P4	Pressure_4

7. Temperature Channel Setting

CH**5 to CH10** are connected to Temperature Channels T1 to T6 respectively.

We have supplied 6 nos. of Temperature Sensors (K type Thermocouples) along with this kit.

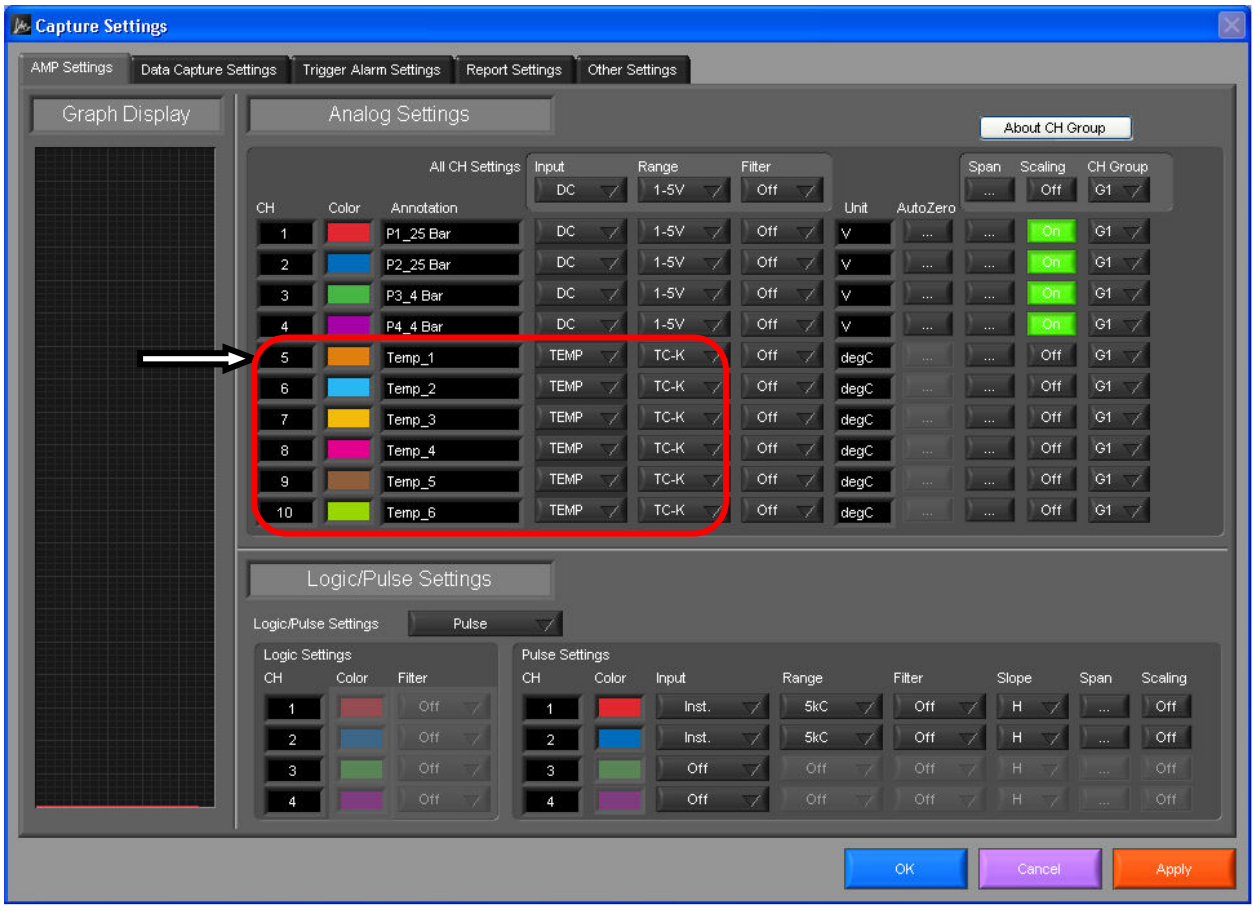
Note: These channels are already set while supplying the instrument, so you no need to set / configure the channels.

In any case if settings are disturbed, you may retrieve the original settings by referring: Loading standard Set-up procedure on page no. 13 & 14.

To Set Temperature Channel at CH5 to CH10, refer following procedure.

Select Input **"TEMP"**.

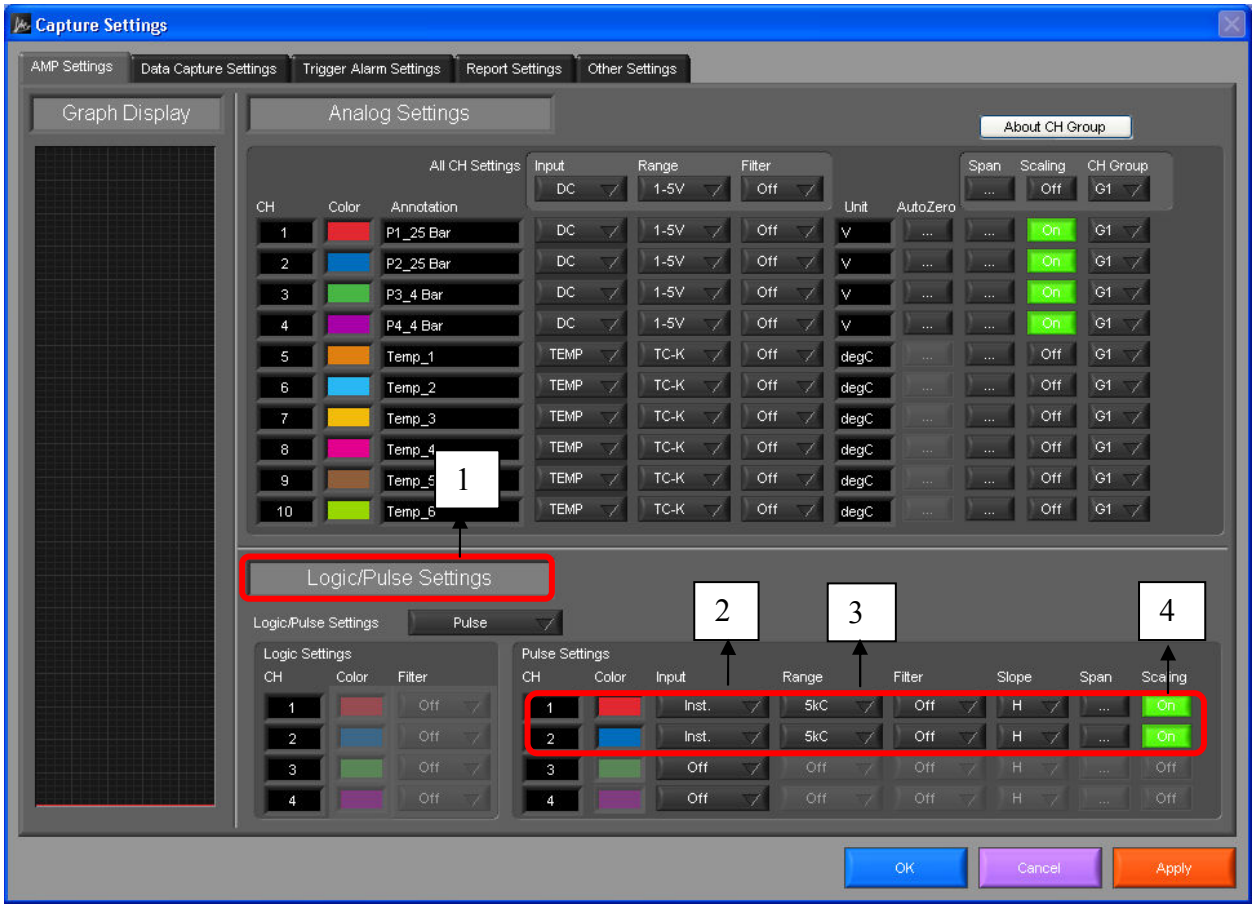
Select input Range "**TC-K**"



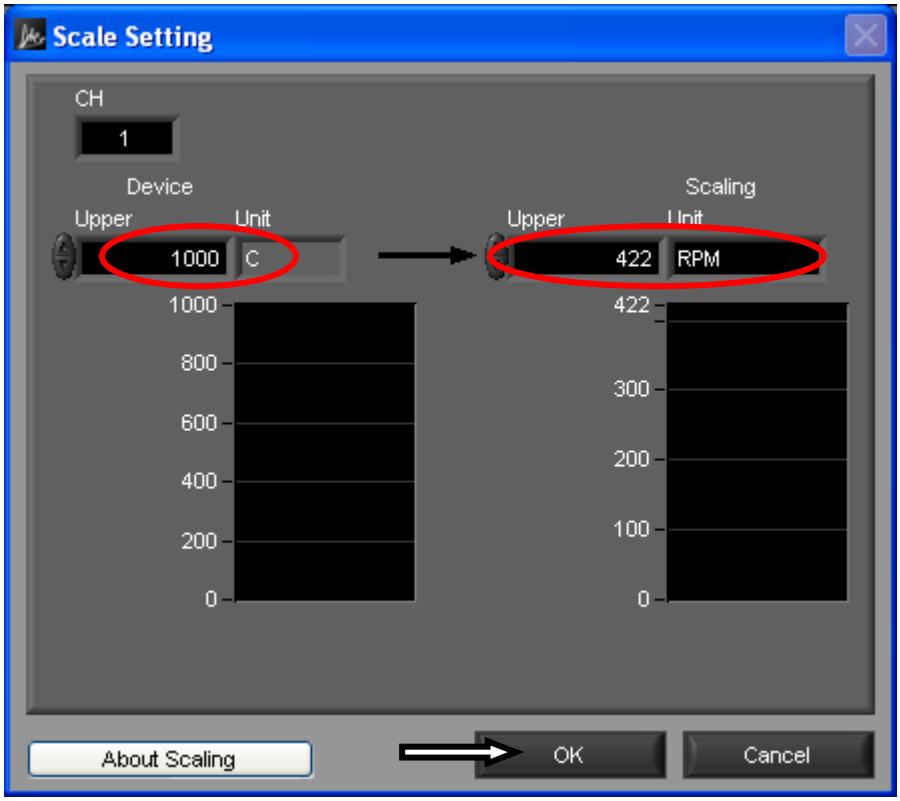
8. RPM Setting

Logic/ Pulse channel 1 and 2 are connected to RPM Channels, RPM1 to RPM2 respectively.
Before doing RPM setting you should know the No. of teeth of the wheel of engine.

Logic / Pulse Settings

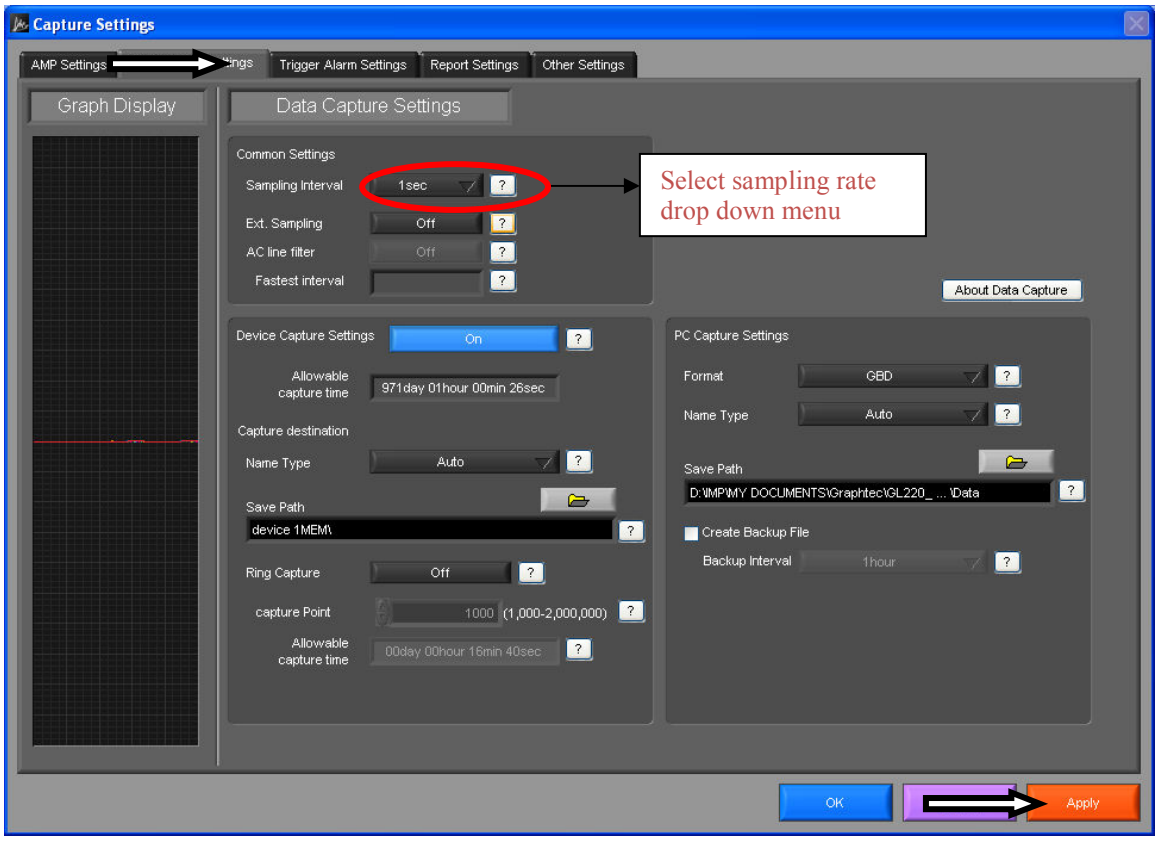


1. Select **Pulse** at Logic Pulse Setting
2. Select Input **“Inst**”.
3. Select input Range “**5kC**”
4. **Click the scaling “on”** this will open **Scale Setting** Window.



Then click add / Edit scaling, in this window we have to scale Frequency into RPM.
For e.g. for engine having Number of teeth **142**
Formula:
RPM = Frequency x 60 / No. of teeth
For Frequency = 1000 & no. of teeth = 142
RPM = 1000 x 60 / 142
RPM = 422.53.
Then click **OK**

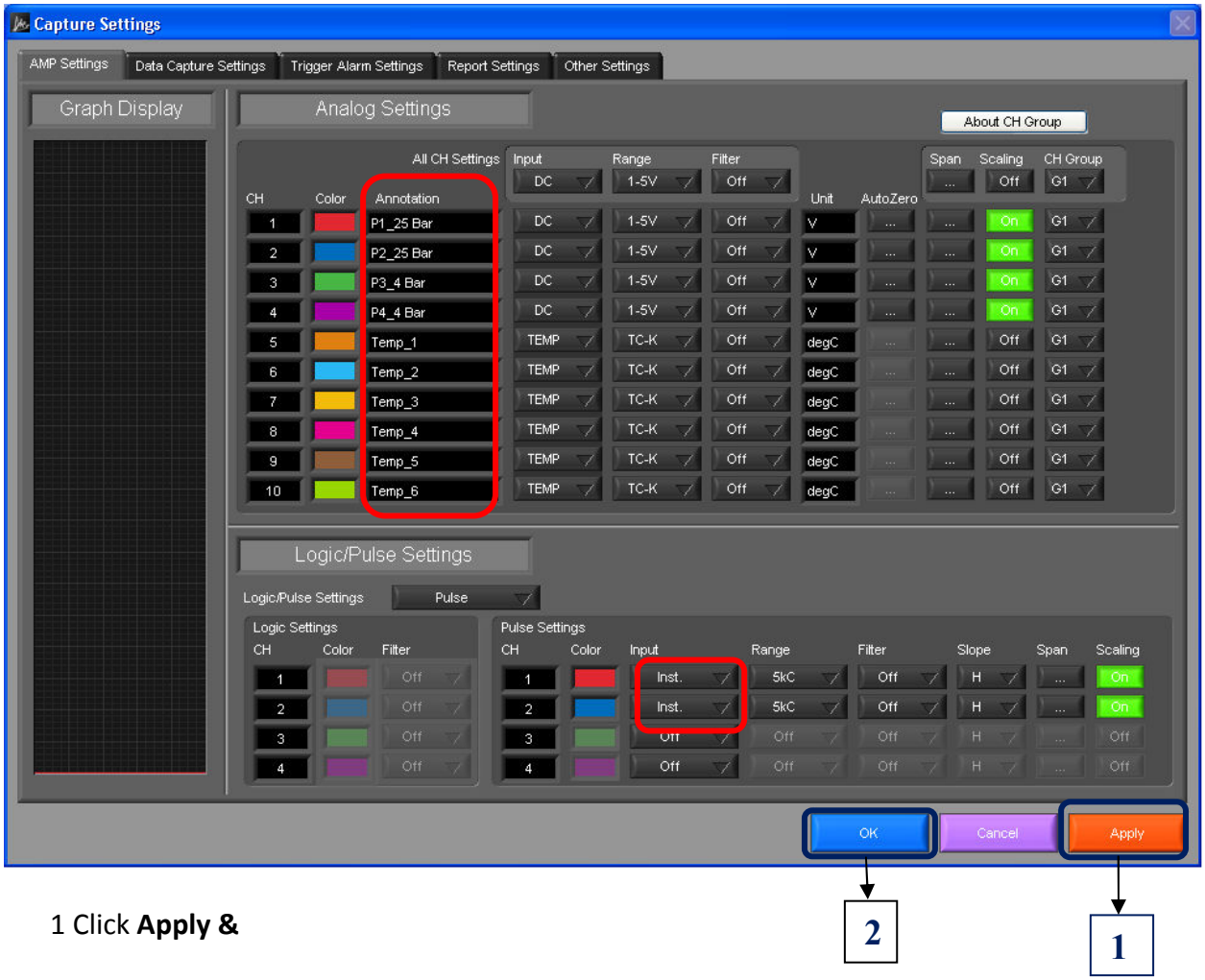
9. Sampling Rate Settings



To Select Input **"sampling Interval"**.

Standard set up window

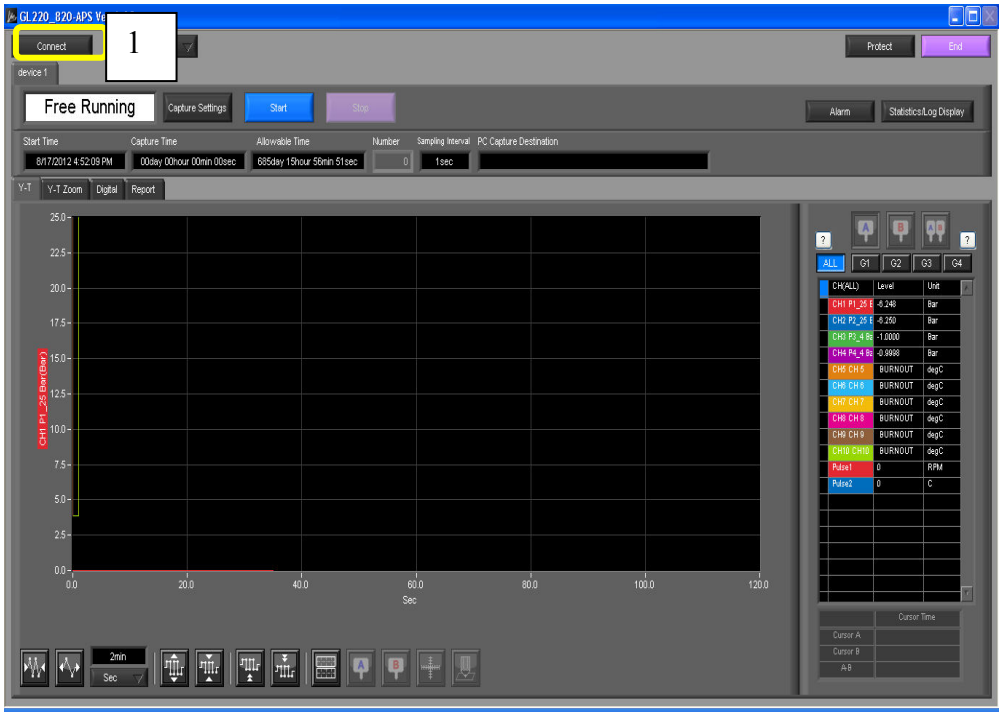
Standard Set up window of all channels is as follows:



1 Click **Apply &**

2 OK

Saving Setting on your PC



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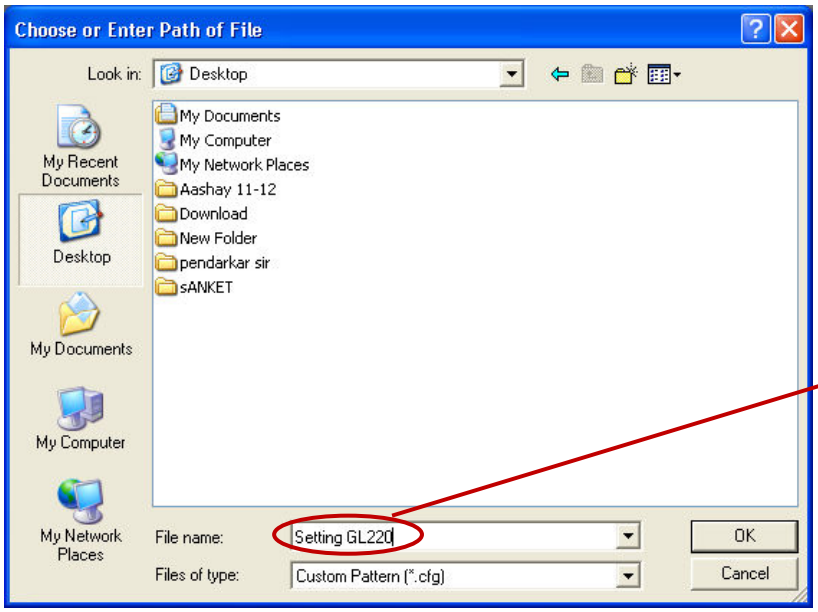
1) Click on “connect” **Saving screen will be displayed**

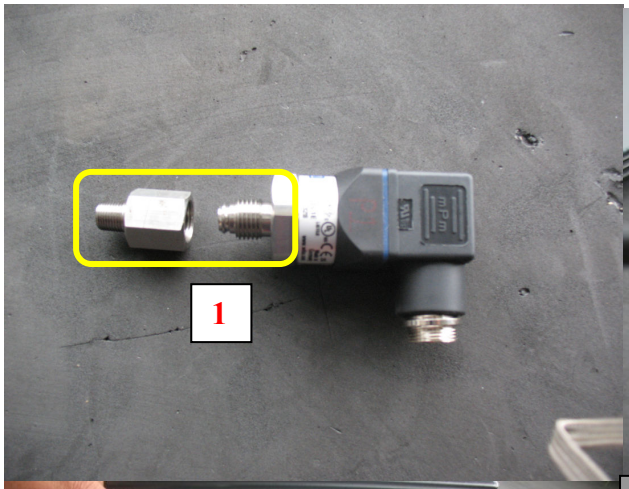
2) Click on : **Saving Conditions**. Following window will open.

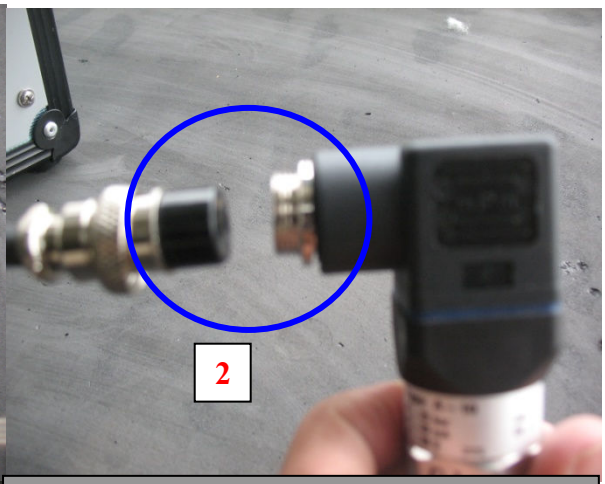


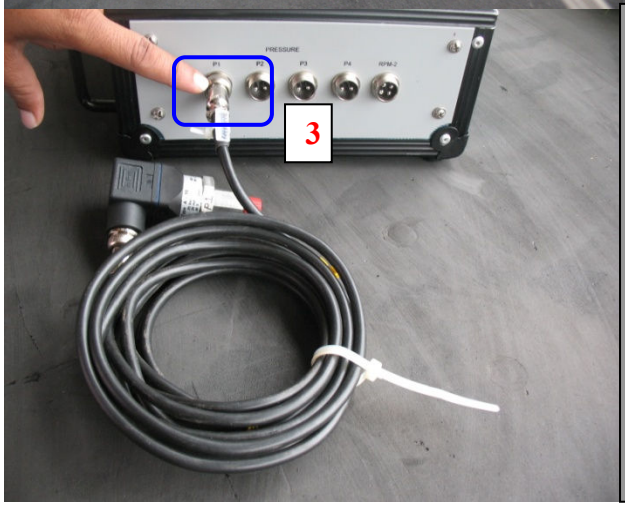
*Save the changed setting file named: **Setting GL220** in user PC for future use. (While connecting next time you need to load this file from loading conditions.)*

3) Save Setting and click on **OK.**

10. Pressure Cable Connection Procedures

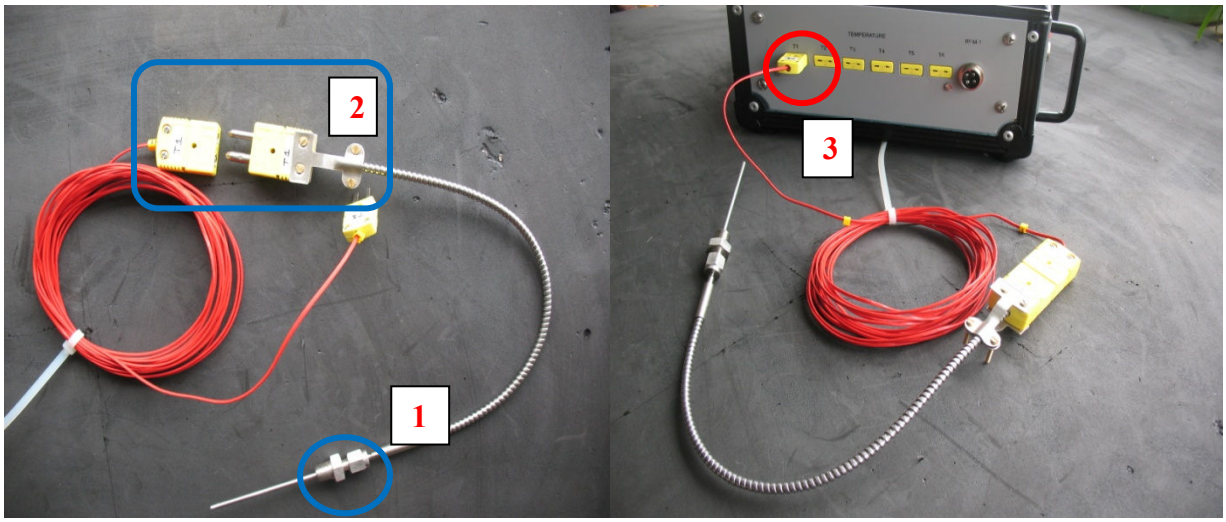






1) Mount the pressure Transmitter on Engine. We have provided 1/8 inch NPT fitting along with Temperature Sensor.
2) Connect Pressure Cable to Pressure Transmitter.
3) Connect the pressure cable to the pressure connector port on data logger. (see Pic. 3)
(Match the Pressure Tranmitter No. e.g. P1 to the P1 port data logger. and same annotations are given on both ends of the Temperature Cable)

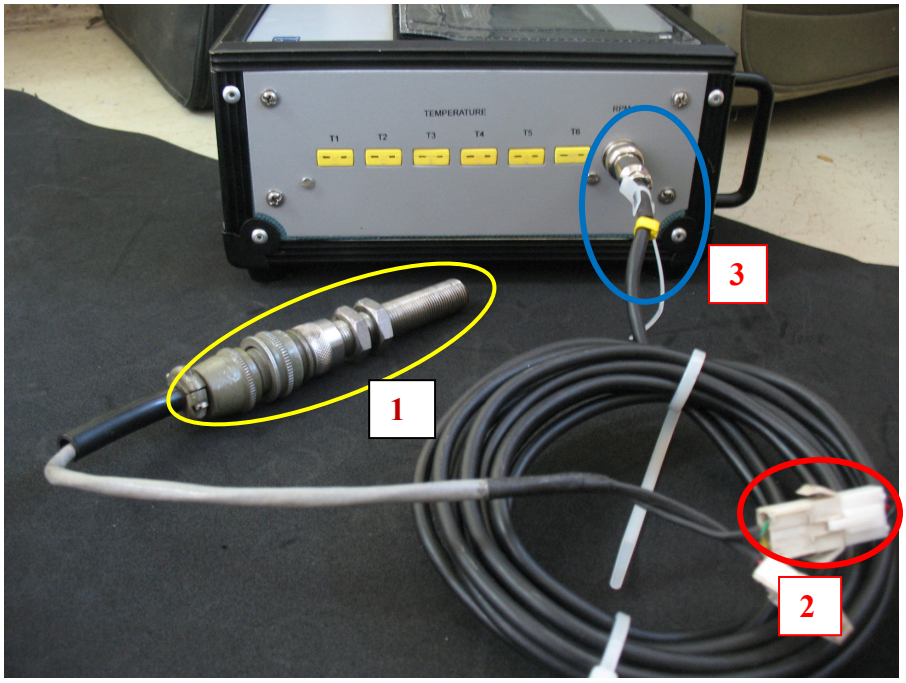
11. Thermocouple Cable Connection Procedures



(1) Mount the Thermocouple on Engine. We have provided 1/8 inch NPT fitting along with Temperature Sensor (see Pic. 1)
(2) connect the thermocouple sensor to extension cable (see Pic. 2)
(3) Connect the thermocouple cable to the Thermocouple port on data logger. (see Pic. 3)

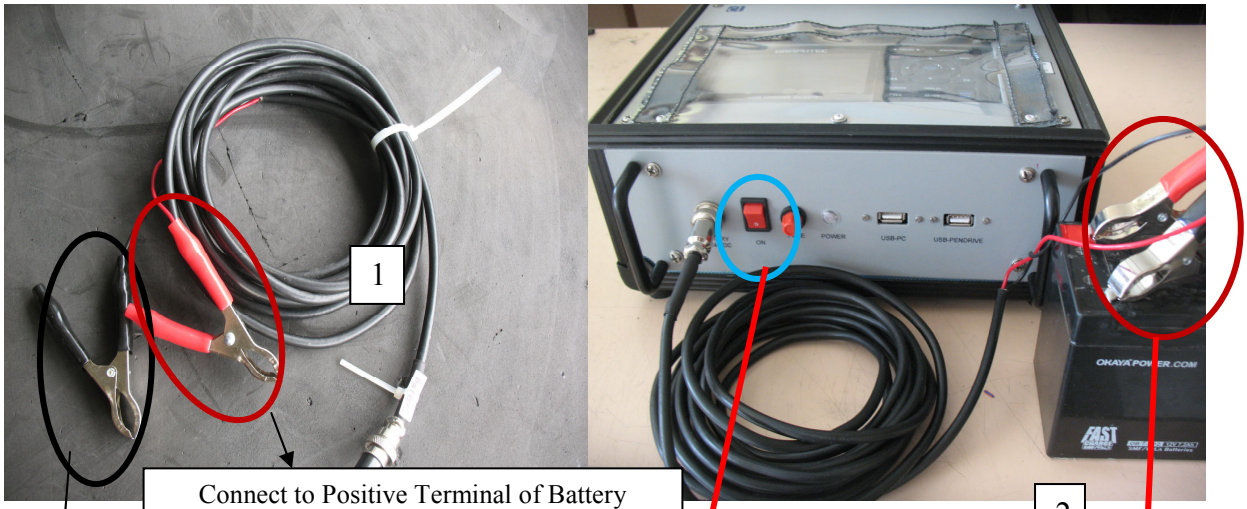
(Match the Thermocouple No. e.g. T1 to the T1 port data logger and same annotations are given on both ends of the Temperature Cable)

12. RPM Cable Connection Procedures



1) Mount the MPU on Engine.
2) connect the MPU output signal to extension cable (see Pic. 1)
3) Connect the MPU cable to the RPM port on data logger. (see Pic. 2)

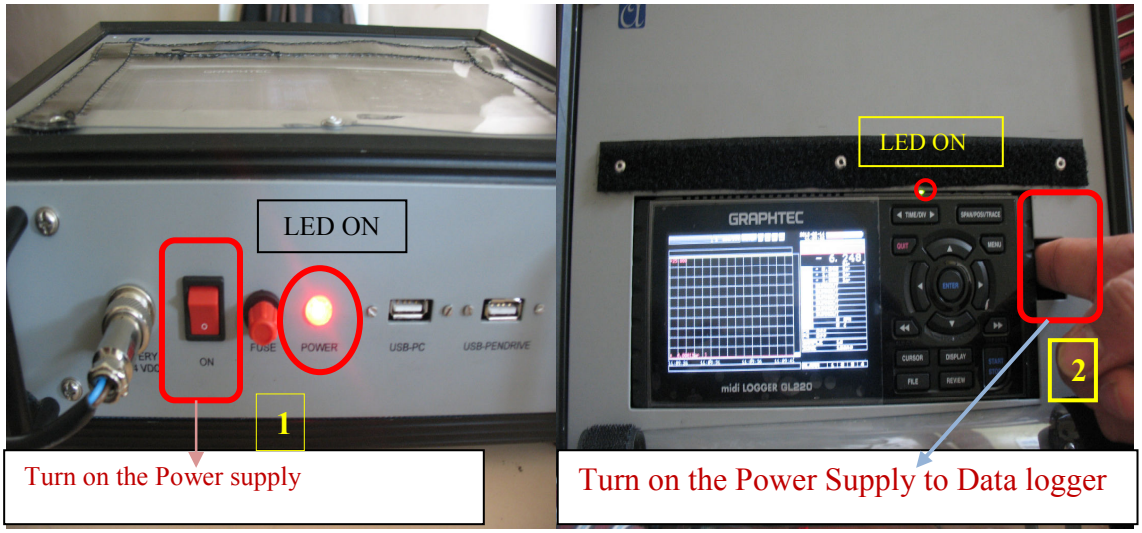
13. Battery Cable Connection Procedures



(1) Connect Battery Cable to the DC Battery 12 or 24VDC.
Ensure that the Red Clamp is connected to + ve terminal of battery and Black Clamp is connected to - ve terminal of battery (see pic.1)
And also ensure that the DC Battery is fully charged before use.
⚠ ***(Do not connect AC power)***

(2) Connect the Battery cable to the **Battery port 12-24 VDC** on data logger. (see Pic. 2)

14. Status Indicator Lights



(1) Turn ON the switch to give voltage Excitation to pressure sensor, RPM sensor condition & charging the Data logger. Check the status the Interface LEN is ON or OFF.

If Led is not glowing, check the Battery voltage. It should be 12 to 24 Volts require. (see pic.1)

(2) Turn on the switch to turn on Data logger Display. LED or Display will ON. (see pic.2)

15. Start Data Logging

For Starting data Recording:

Press the START/STOP key

- Following message will be prompt on display of data logger

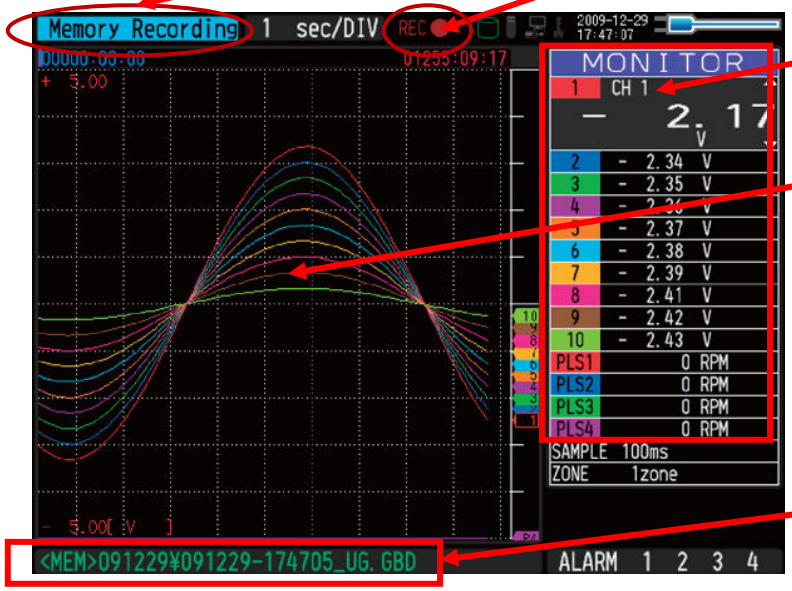
Start Data Capture ?

[ENTER] Yes [QUIT] No

Press the ENTER key to start data capture

Note : It is not mandatory to connect data logger to Computer while recording the data.
Keypad on data logger will be deactivated when connected to computer.

Data Logging Confirmation: Memory "Recording" and Rec should flash



Online Monitoring of the Readings

Online Monitoring of the Graph

Name and path of the data file

12.1 : Send Data Logger with Engine / Generator for Data Logging :

After getting confirmation of all above things, you may start the Engine / Gensets and record the data for your required time durations.

Note : While Recording please take care of following things:

- Do not disturb / Remove the Battery connection.
- Do not turn off the data logger.
- Please check periodically that : Memory Recording is flashing.

16. Stop Data Logging

After completion of the data logging, **stop the data capture**.

Press the START/STOP key

- Following message will be prompt on display of data logger

Stop Data Capture ?

[ENTER] Yes [QUIT] No

Press the ENTER key to Stop data Capture.

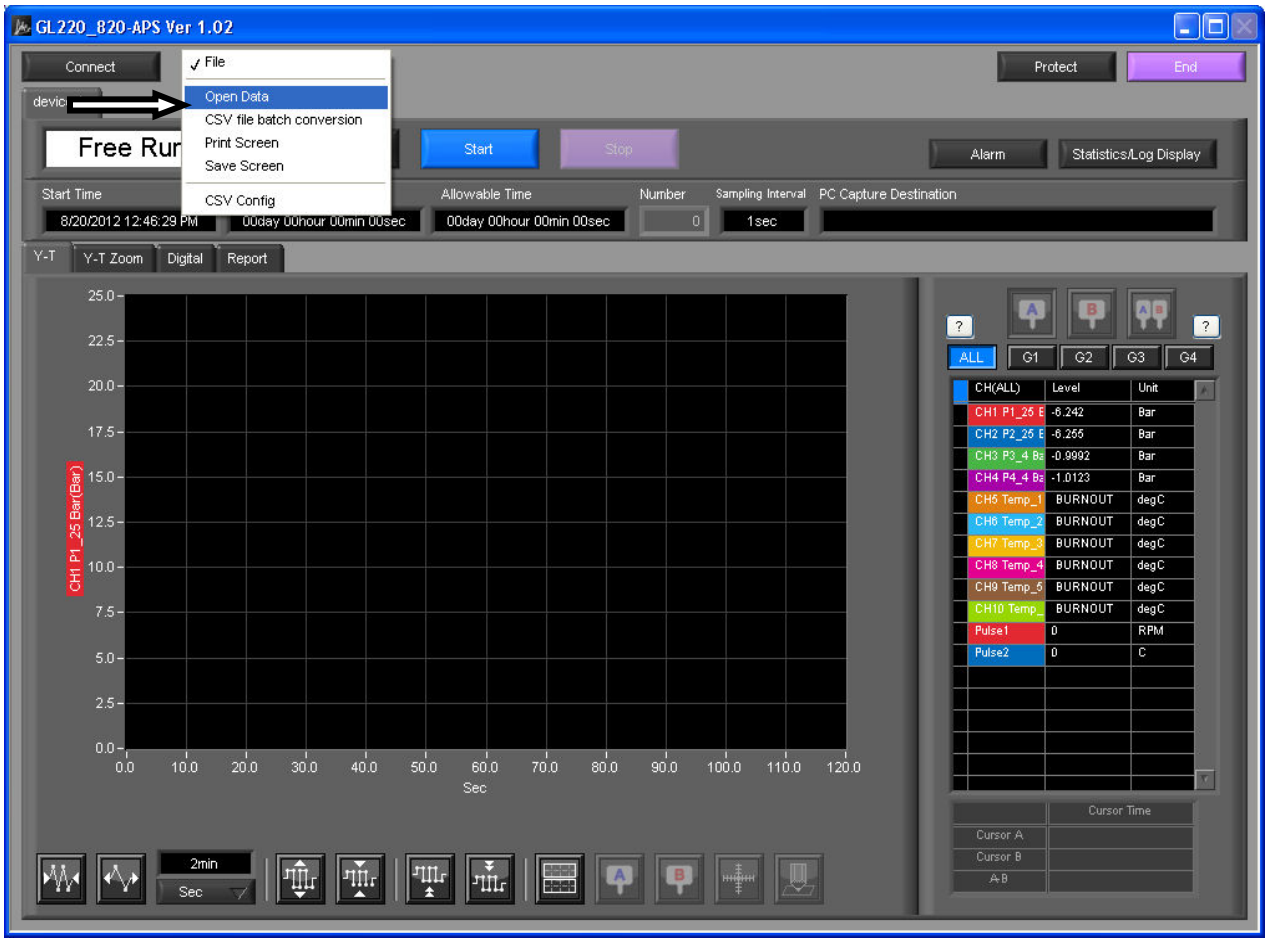
Data capture ends, and the Data Logger goes into the Free Running status.

Now you may download data by referring procedure on page no.33.

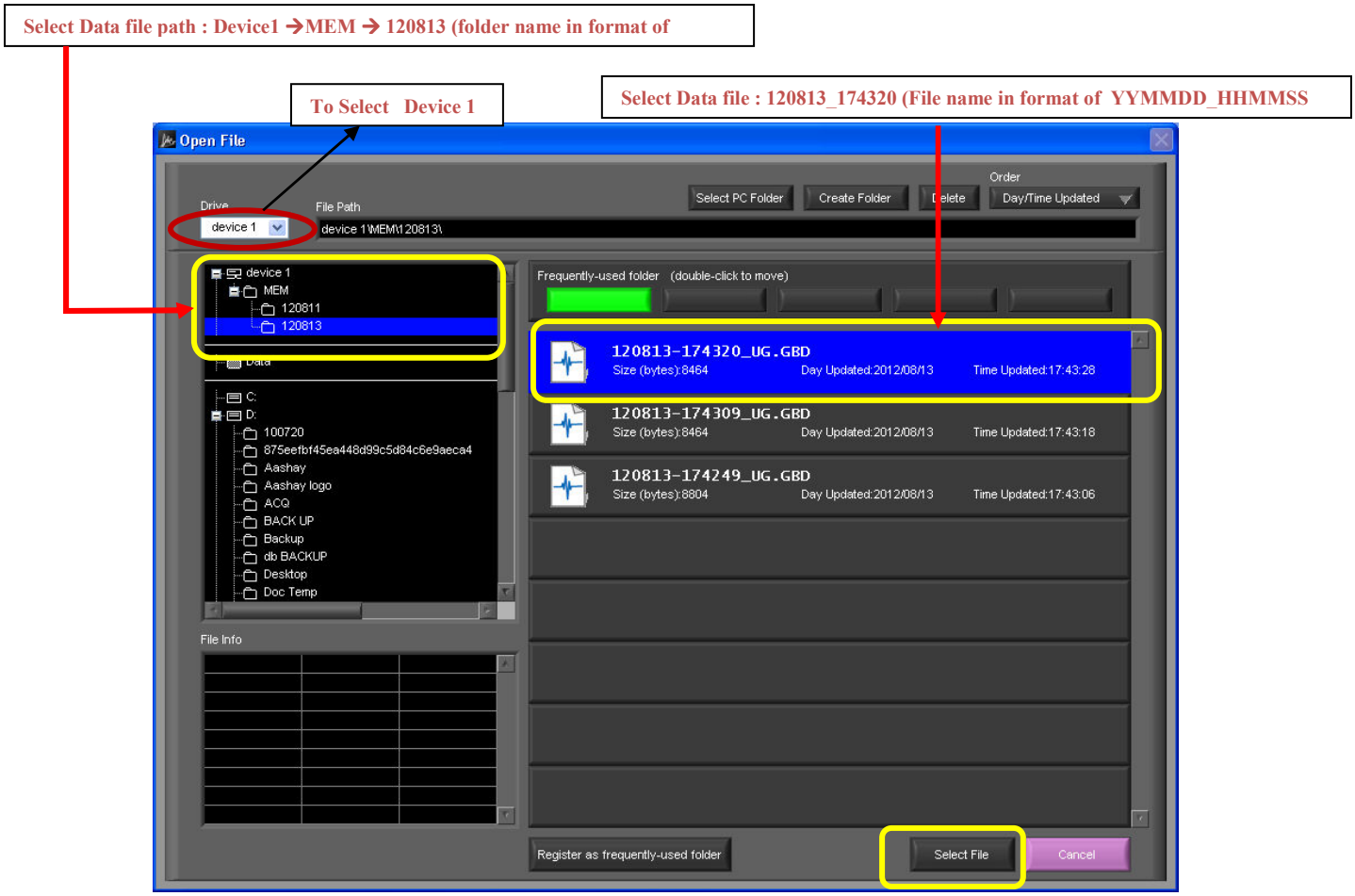
17. Download Data

- *For Downloading the datafile you need to connect the data logger to PC. For connection procedure please refer the page no.*

After connecting the data logger.
Click on File
Click on "Open Data"



After clicking on "Open Data" , following Window of Data files selection will open.

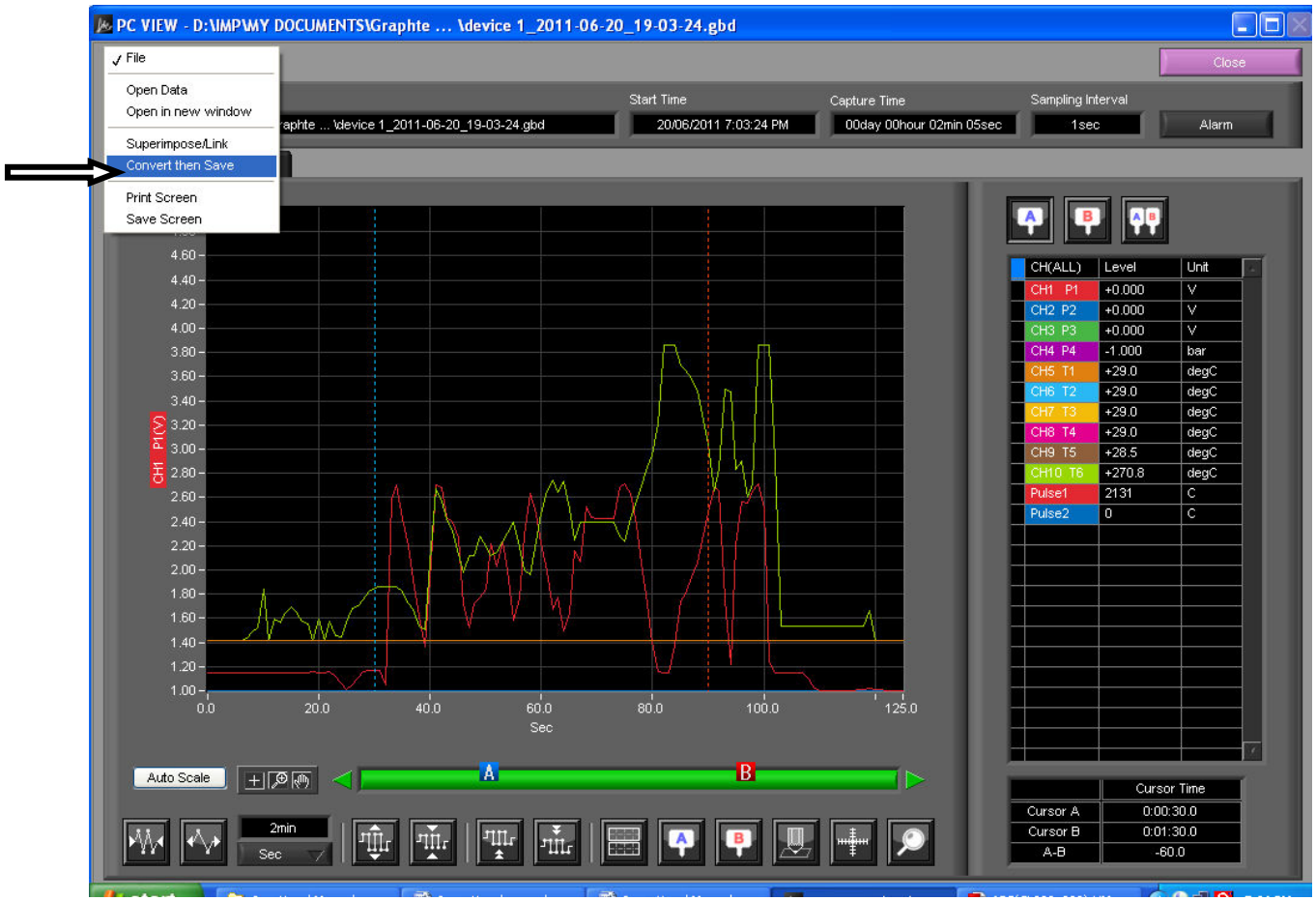


Click this button to **select the file** (display the file).

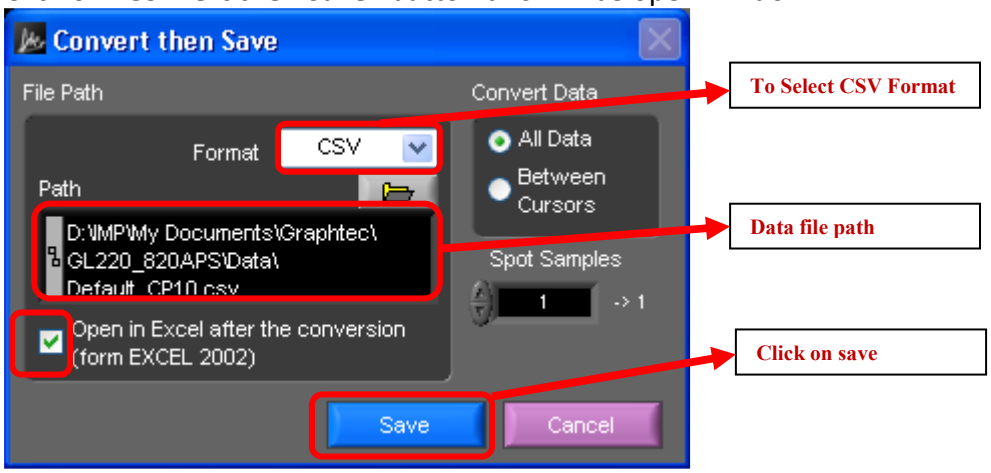
Click t on "Select File" this will open **the Data File in following** Window.

Note : You can not download data while Data Logger is in Memory Recording Mode.

18. Covert GBD data file to CSV (excel) file Procedure

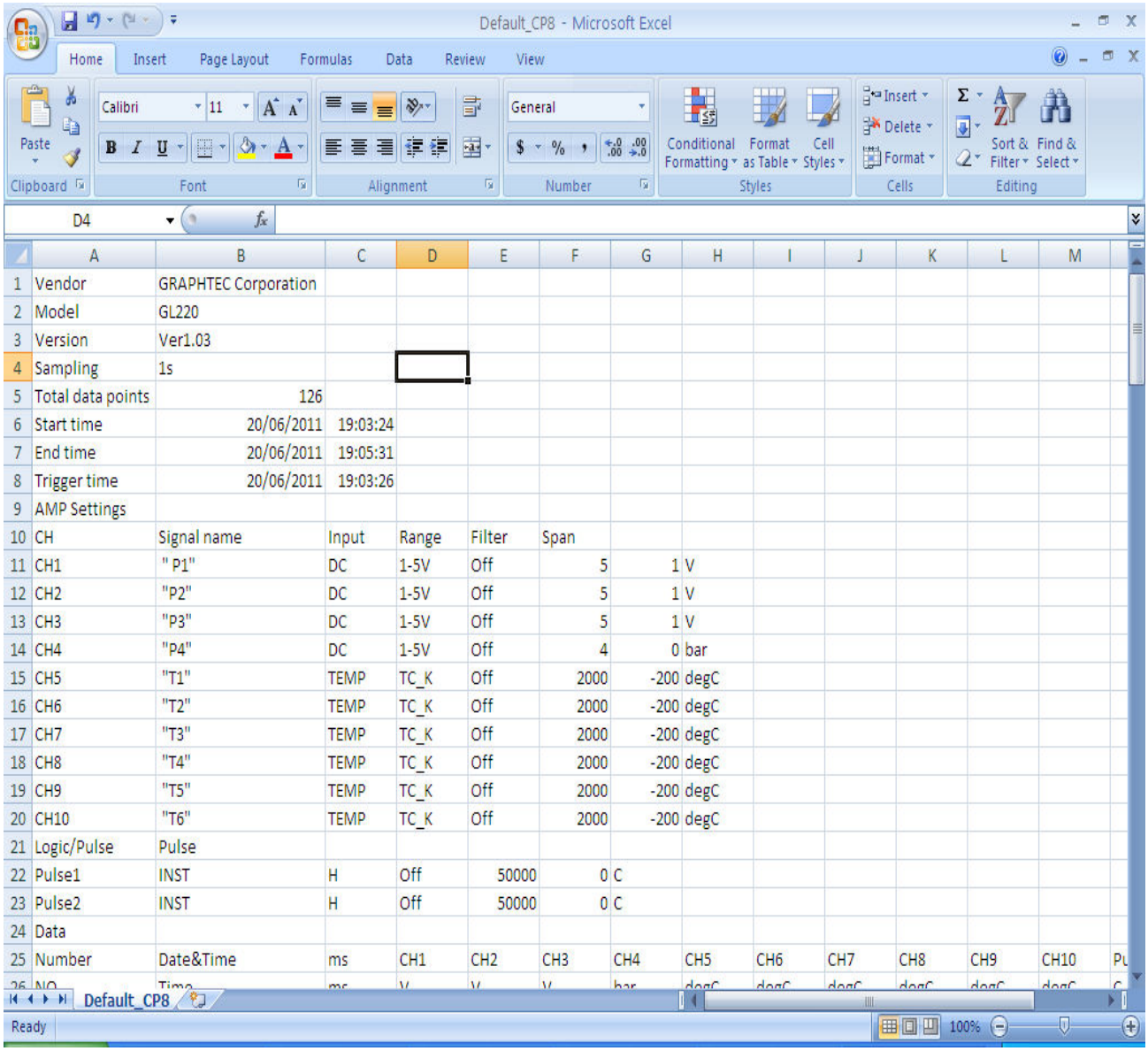


GBD (binary data) files to be converted in an **Excel (CSV)** format files.
Click on "**Convert then Save**" button this will be open window.



After clicking on **"Save"** button. Excel Data File will open.

Data File in Excel Format.



	A	B	C	D	E	F	G	H	I	J	K	L	M
1	Vendor	GRAPHTEC Corporation											
2	Model	GL220											
3	Version	Ver1.03											
4	Sampling	1s											
5	Total data points	126											
6	Start time	20/06/2011	19:03:24										
7	End time	20/06/2011	19:05:31										
8	Trigger time	20/06/2011	19:03:26										
9	AMP Settings												
10	CH	Signal name	Input	Range	Filter	Span							
11	CH1	" P1"	DC	1-5V	Off	5	1	V					
12	CH2	"P2"	DC	1-5V	Off	5	1	V					
13	CH3	"P3"	DC	1-5V	Off	5	1	V					
14	CH4	"P4"	DC	1-5V	Off	4	0	bar					
15	CH5	"T1"	TEMP	TC_K	Off	2000	-200	degC					
16	CH6	"T2"	TEMP	TC_K	Off	2000	-200	degC					
17	CH7	"T3"	TEMP	TC_K	Off	2000	-200	degC					
18	CH8	"T4"	TEMP	TC_K	Off	2000	-200	degC					
19	CH9	"T5"	TEMP	TC_K	Off	2000	-200	degC					
20	CH10	"T6"	TEMP	TC_K	Off	2000	-200	degC					
21	Logic/Pulse	Pulse											
22	Pulse1	INST	H	Off	50000	0	C						
23	Pulse2	INST	H	Off	50000	0	C						
24	Data												
25	Number	Date&Time	ms	CH1	CH2	CH3	CH4	CH5	CH6	CH7	CH8	CH9	CH10

You may save this excel file for your further analysis.

19. Keypad operation

19.1 Setting menu

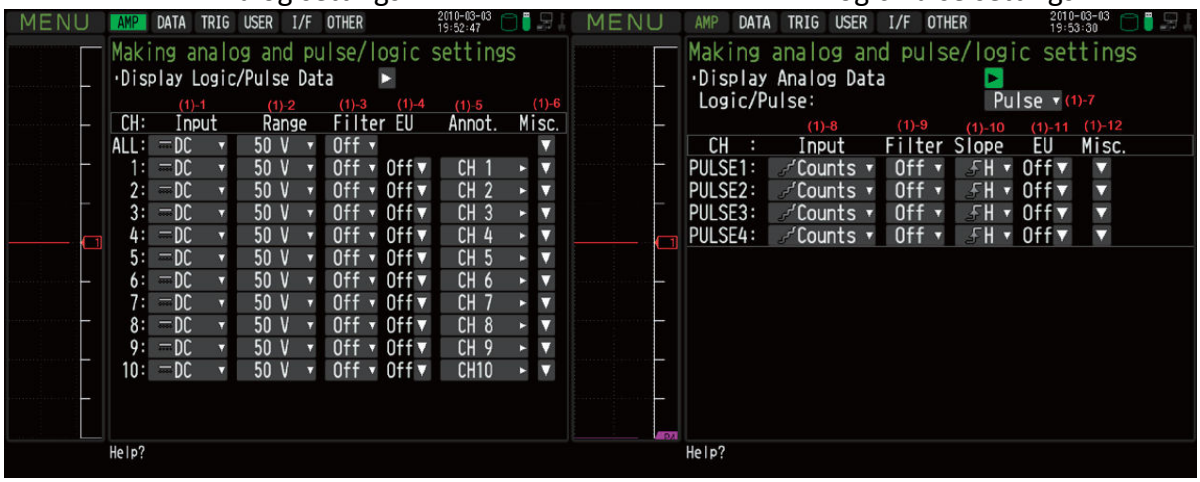
When you press the MENU key during Free Running, the following menu screens appear. The menu screens are classified by the tab for each setting item.

Note: Keys is enabling when data logger is not connected in PC

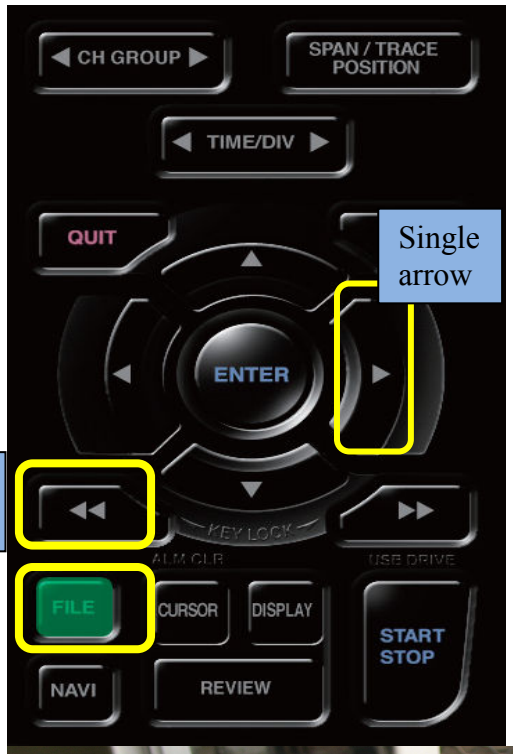
1) Amp Setting

This menu is used to specify input signal-related settings.

<Analog settings> <Logic Pulse settings>



20. Download / Copy data by using “PEN Drive.”



Data Download procedure

1) Hook the Pen drive in USB-PENDRIVE Port.
2) Press “FILE” key in Keyboard.
3) “ Enter” key file operation:
4) Will be open Disc Operation.
5) Press right single arrow Key.
6) Select folder by using double arrow key.
   (Copy file / folder)
7) Enter Key.
   (Select file(s) to copy)
8) Enter Key
   (Selected file is blue)
9) By using double arrow key to select USB path.
   (Select copy dest. & Execute)
10) Enter
11) Ok … press Quit key.

21 Technical Support

Important Instructions

- It is recommended that one person from Area office will be responsible for the use and contains of the Data Logger kit while it is being used, transported or stored.
- Data Logger Kit will be used by the Persons Trained by the supplier.
- Proper packaging should be done while it is being transported.
- Before and after the data acquisition trial the logger, sensors, cables & other parts in the kit should be checked as per the checklist provided with the kit.
- In each month report related to its use, important data files, contents, missing parts etc. should be sent to H. O. Pune.
- In case of any problem about the use of equipment or any will be communicated to Aashay Measurements Pvt. Ltd. Pune.
- Users should not unnecessarily open its interface unit and its wiring etc.
- Software master CDs should be maintained separately and can be loaded at multiple locations.
- 12V, 7amp hr Sealed lead acid battery should be kept at offices. The battery should be dedicated for Data Logger.

- ***Direct Technical Support Helpline numbers are: 9423241542, 02024376819, 9561609564.***

Aashay Measurements Private Limited

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